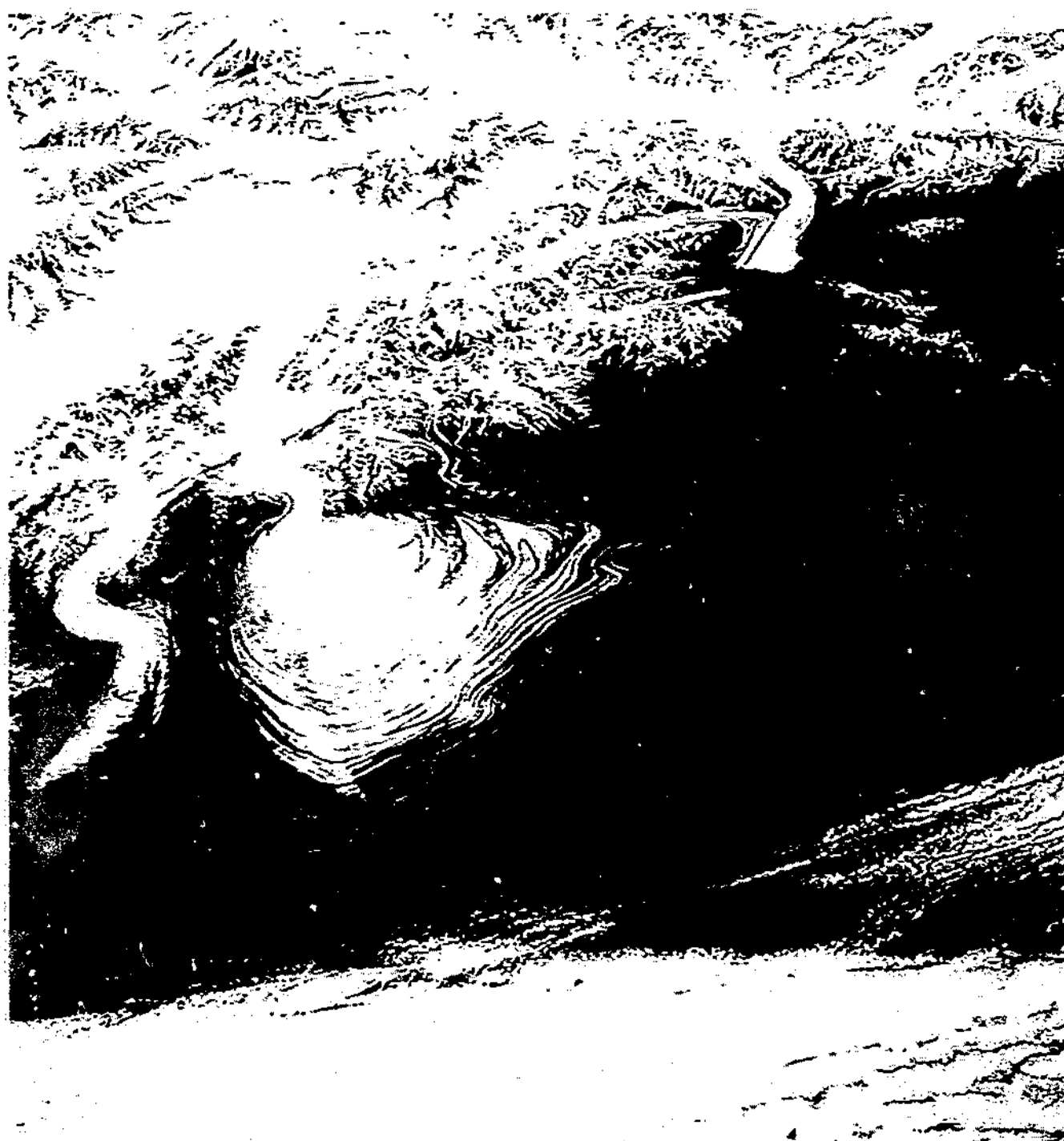


# Catalog of Space Shuttle Earth Observations Handheld Photography

**Space Transportation System 28 (STS-28) Mission**

**Mission Dates: August 8 Through 13, 1989**

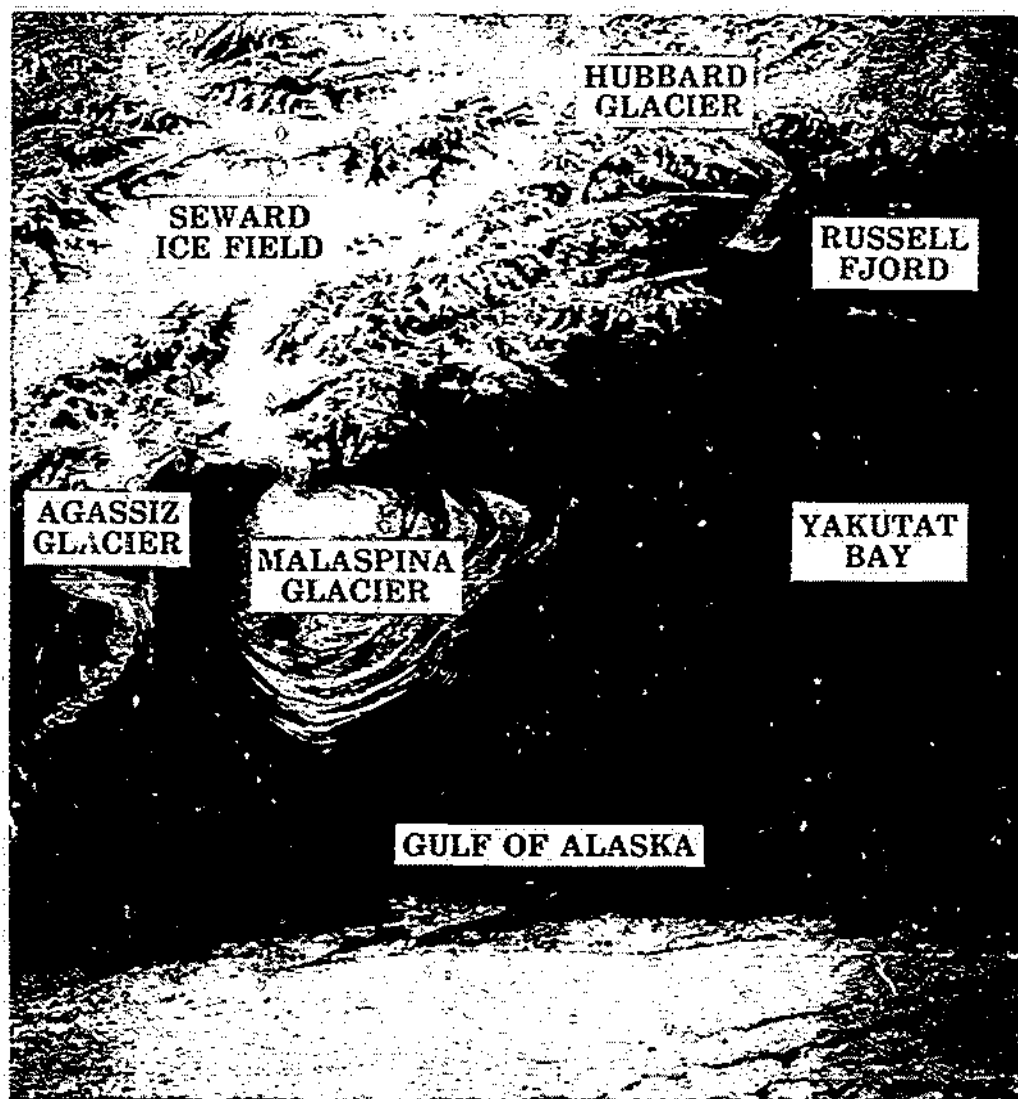


Space Shuttle Earth Observations Office  
Solar System Exploration Division  
Space and Life Sciences Directorate



National Aeronautics and  
Space Administration  
Lyndon B. Johnson Space Center  
Houston, Texas 77058

## MALASPINA GLACIER, ALASKA



*The Malaspina Glacier, centered at 59.9° N. 140.5° W. on the south shore of Alaska, is a classic example of a piedmont glacier lying along the foot of a mountain range. The principal source of ice for the glacier is provided by the Seward Ice Field (to the north - see diagram) which flows through three narrow outlets onto the coastal plain. The glacier moves in surges that push earlier-formed moraines outward into expanding concentric patterns along the flanks of the ice mass. The Agassiz Glacier is to the left of the Malaspina Glacier. At the head of Yakutat Bay (on the right side of the photograph) is Hubbard Glacier, which in 1989 surged to block the entrance to Russell Fjord (see diagram) and temporarily trapped large numbers of marine animals. As of this writing, Hubbard Glacier is reported to have receded, thus opening the entrance to the fjord.*

# **CATALOG OF SPACE SHUTTLE EARTH OBSERVATIONS HANDHELD PHOTOGRAPHY**

**SPACE TRANSPORTATION SYSTEM 28 (STS-28) MISSION**  
**Mission Dates: August 8 Through 13, 1989**

**Job Order J4-S10**

**Prepared By**

**Raymond M. Nelson  
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**Lockheed Engineering & Sciences Company**

**For**

**Space Shuttle Earth Observations Office  
Solar System Exploration Division  
Space and Life Sciences Directorate**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
LYNDON B. JOHNSON SPACE CENTER  
HOUSTON, TEXAS 77058**

**September 1990**

**LESC-28004**

# CATALOG OF SPACE SHUTTLE EARTH OBSERVATIONS HANDHELD PHOTOGRAPHY

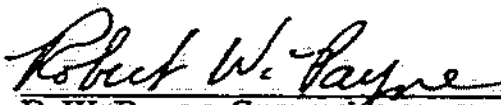
**SPACE TRANSPORTATION SYSTEM 28 (STS-28) MISSION**  
**Mission Dates: August 8 Through 13, 1989**


Job Order J4-S10

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September 1990

## THE ASTRONAUT PERSPECTIVE\*

By the STS-28 crew: Brewster H. Shaw, Richard N. Richards, James C. Adamson, David C. Leestma, Mark N. Brown

*We began our 70th orbit of the Earth approaching the sunrise terminator over the Philippine Islands moving rapidly toward Japan. Our morning Earth observation update message had mentioned a possible underwater volcanic eruption near Tokyo Bay, and we were soon to pass over that location. There, very near Oshima Island, we saw the smokey, steamy plume of an underwater volcano. It really did exist, and we shifted around the overhead windows to take photos and let everyone get a look. And that was not the end of the marvels we observed on that orbit. After flying over the Aleutian Islands we crossed the Canadian coastline, seeing the spectacular glacier-covered northern Rocky Mountains. Continuing down the spine of the Rockies over the United States we could look west over the Great Salt Lake all the way to the Pacific Ocean and look ahead and see Texas and the Gulf of Mexico. This orbit then took us over Central America and back into the Pacific Ocean before crossing South America and into the South Atlantic. It was a graphic reminder of how far east South America really is! As we passed through the sunset terminator we saw a phenomenal display of the Aurora Australis. Wow! It took our breath away and made it hard to break away from the windows to get back to work. What a marvelous planet we live on!*

*The crew of STS-28 had trained and studied hard to get ready for this high inclination (57°) orbital mission. In addition to the mission itself, we knew we were going to see areas of the world not normally observed from the Shuttle. This fact helped spur us to becoming experts with our camera equipment and to try to understand what all the various Earth observation disciplines would really like to see in our photographs. This is no easy task when confronted with the varied requirements for geology, oceanography, meteorology, ecology, and geography.*

---

\*This perspective is from the "STS-28 Earth Observations Mission Review" published in *Geocarto International*, vol. 5, no. 2, in the summer of 1990.

The Space Shuttle Earth Observations Office wishes to acknowledge those STS-28 astronauts who acquired the photographs cataloged in this document: Brewster H. Shaw, commander; Richard N. Richards, pilot; and James C. Adamson, David C. Leestma, and Mark N. Brown, mission specialists.

*After the excitement of launch and that thrilling first look out the windows at the Earth, it was time to apply what we had learned. At first it was difficult to locate specific Earth observation sites, but as the flight progressed everyone became adept at distinguishing features on the swiftly changing scene below. Moving over the ground at nearly 18,000 mph (5 mi/sec) is exhilarating and allows the countries and continents to move by in a panorama of stately grace. It is not too difficult to discern when something is awry from its natural state; either the color is different (red lakes, gray cities) or the normal change in scenery is too abrupt (deforestation areas). That we live on a fragile planet that requires care and keeping was readily apparent.*

*Hopefully, we were able to bring back a part of these majestic images of Earth on film. We took nearly 3500 photographs of the Earth as our legacy of the flight. The visual impressions that we will carry with us forever are remembered every time we review the pictures, even though photographs never seem to approach the true view of what we actually observed. Maybe others can learn from what we brought back and discover more and more about this amazing Earth.*

# CONTENTS

Section	Page
TABLES .....	vi
FIGURES .....	vi
ACRONYMS AND ABBREVIATIONS .....	vii
1. INTRODUCTION .....	1-1
1.1 <u>EARTH OBSERVATIONS PHOTOGRAPHY</u> .....	1-1
1.2 <u>CATALOGING AND INDEXING</u> .....	1-2
2. ACQUISITION OF EARTH OBSERVATIONS PHOTOGRAPHY ....	2-1
3. PHOTOGRAPHY NUMBERING, SOURCES, AND ORDERING PROCEDURES .....	3-1
3.1 <u>NUMBERING OF PHOTOGRAPHY</u> .....	3-1
3.2 <u>PHOTOGRAPHY SOURCES AND ORDERING PROCEDURES</u> .....	3-1
4. FILM AND CATALOG LISTINGS .....	4-1
5. STS-28 EARTH OBSERVATIONS PHOTOGRAPHY SUMMARY MAPS - A AND B .....	5-1

## TABLES

Table	Page
1-1 MISSION DATA FOR STS-28 .....	1-3
3-1 PHOTOGRAPHY VIEWING CENTERS .....	3-2
4-1 PHOTOGRAPHIC SUMMARY FOR MISSION STS-28	
(a) Film utilized .....	4-2
(b) Polarization tests .....	4-2
4-2 EXPLANATION OF COLUMN HEADINGS USED IN TABLES 4-3 AND 4-4 .....	4-3
4-3 STS-28 HANDHELD PHOTOGRAPHY SORTED BY ROLL AND FRAME .....	4-4
4-4 STS-28 HANDHELD PHOTOGRAPHY SORTED BY GEOGRAPHIC NAME .....	4-56

## FIGURES

Figure	Page
2-1 NASA-modified Hasselblad 500 EL/M camera .....	2-3
2-2 Linhof Aero Technika camera .....	2-3
2-3 Location of windows in the Shuttle Orbiter .....	2-4
2-4 Handheld Hasselblad cameras with dual mount .....	2-4



## ACRONYMS AND ABBREVIATIONS

a.m.	ante meridiem
ASA	American Standards Association
DRM	data recording module
EDT	eastern daylight time
EROS	Earth Resources Observation Systems
ESIC	Earth Sciences Information Center
GMT	Greenwich mean time
JSC	Lyndon B. Johnson Space Center
km	kilometer
N.	north
NASA	National Aeronautics and Space Administration
nmi	nautical mile
OV	orbital vehicle
PDT	Pacific daylight time
SSEO	Space Shuttle Earth Observations Office
SSEOP	Space Shuttle Earth Observations Project
STS	Space Transportation System
W.	west

# **1. INTRODUCTION**

## **1.1 EARTH OBSERVATIONS PHOTOGRAPHY**

In support of the acquisition of Earth observations photography by Shuttle astronauts, the Space Shuttle Earth Observations Office (SSEOO) at the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center (NASA-JSC) coordinates and trains crews in Earth sciences, provides real-time mission support, and catalogs the handheld photography. Space Shuttle crews are briefed on Earth and environmental phenomena of scientific interest and on the basic techniques used to acquire photography over specific sites. During each mission, project personnel monitor the Earth for events of special interest (such as hurricanes or other major storms, floods, ice packs, fires, and active volcanoes), as well as for environmental conditions of specific interest. Messages to the Shuttle crew requesting photography of an event are coordinated through Mission Control at NASA-JSC.

On the Space Transportation System 28 (STS-28) Mission, the crew took 26 magazines of American Standards Association (ASA) 64 color film (Professional 5017) and 2 magazines each of ASA 200 color film and ASA 160 false color infrared film with the Hasselblad cameras, as well as 3 magazines of ASA 64 film with the Linhof camera. All the film aboard the Shuttle was used. During preflight briefings, the crew was asked to emphasize photography of specific themes, for which the Shuttle photography from previous missions had proved to be especially informative. These themes were (1) deltas, for studying geologic formations; (2) bays, for studying turbidity patterns and ecological fluid dynamics; (3) cities, for studying demographic features; and (4) geologic faults, for studying tectonic structures. A first count showed that the following photography was acquired: 36 deltas, 50 percent of which (mostly the smaller ones) had never been photographed before; 180 bays and estuaries; 484 cities (well centered in the frames), more than 60 percent of which had never before been photographed by U.S. astronauts; and 411 major faults.

In addition, the crew was asked to experiment with various techniques for improving photographic image quality. It is apparent that future training and photographic quality will benefit from this experimentation. The crew was also asked to perform

one experiment using polarized photography; they performed two. Most importantly, the crew recognized features and phenomena that departed from the norm and recorded them for the rest of us to share. By all measures this flight was a most successful Earth observations mission. This high-latitude (57° inclination) summer mission and the high-latitude winter mission (STS-27) flown 6 months earlier provide complementary data sets of seasonal variations and a synergism of unmatched value in the Space Shuttle Earth Observations Project (SSEOP). Specific mission data for STS-28 are listed in table 1-1.

## **1.2 CATALOGING AND INDEXING**

This document catalogs Space Shuttle handheld Earth observations photography acquired during Mission STS-28. The country, geographic location, general quality, cloud coverage, and other descriptors of each frame are listed by roll number and by geographic name in section 4, tables 4-3 and 4-4, respectively. This catalog is a product of the SSEOP, Solar System Exploration Division, Space and Life Sciences Directorate at NASA-JSC, Houston, Texas. Support has been provided by Lockheed Engineering & Sciences Company, Houston, Texas, under Contract NAS 9-17900.

Cataloging of Earth-looking photography from this mission was accomplished by R. M. Nelson and W. F. Palmer of Lockheed Engineering & Sciences Company. Additional contributors to this report include V. S. Whitehead, D. L. Amsbury, M. R. Helfert, K. P. Lulla, and C. A. Wood of NASA-JSC, and L. P. Boedeker, W. J. Daley, C. A. Evans, K. J. Hancock, and M. J. Wilkinson of Lockheed Engineering & Sciences Company.

**TABLE 1-1.- MISSION DATA FOR STS-28**

<b>Launch:</b>	August 8, 1989; 12:37 GMT (8:37 a.m. EDT); from John F. Kennedy Space Center, Florida	
<b>Landing:</b>	August 13, 1989; 13:38 GMT (6:38 a.m. PDT); at Edwards Air Force Base, California	
<b>Orbits:</b>	81	
<b>Vehicle:</b>	Columbia (OV-102)	
<b>Altitude:</b>	160 nmi (290 km)	
<b>Inclination:</b>	57.2°	
<b>Crew:</b>	<b>Commander</b>	- Brewster H. Shaw
	<b>Pilot</b>	- Richard N. Richards
	<b>Mission specialists</b>	- James C. Adamson
		- David C. Leestma
		- Mark N. Brown

**NOTE:** Selected Mission STS-28 handheld photographs, with accompanying captions and text, were published in the summer 1990, vol. 5, no. 2, issue of *Geocarto International*, a multidisciplinary journal of remote sensing.

## **2. ACQUISITION OF EARTH OBSERVATIONS PHOTOGRAPHY**

The photography described in this catalog was obtained using two types of cameras. The NASA-modified Hasselblad 500 EL/M 70-mm cameras (figure 2-1) were equipped with Zeiss 50-mm CF Distagon f4.0, 100-mm CF Planar f3.5, and 250-mm CF Sonnar f5.6 lenses. Kodak Ektachrome Professional 5017 (ASA 64) film, Kodak Ektachrome 5036 (ASA 200) film, and Kodak Aerochrome Color Infrared 2443 (ASA 160) film were used in the Hasselblad cameras. A Linhof Aero Technika camera (figure 2-2) was equipped with interchangeable Linhof 90-mm Super Angulon f5.6 and 250-mm Tele-Arlon f5.6 lenses. The films used for the latter camera were 5-in. Kodak Ektachrome Professional 5017 (ASA 64), Standard Base, and Kodak Ektachrome QX 868 (ASA 64), Thin Base (5017 emulsion). All photographs were taken through the windows of the Shuttle Orbiter (figure 2-3).

Data recording modules (DRM's) were installed on the camera magazines to record the date, time in Greenwich mean time (GMT), DRM number, frame number, and mission number. These modules can be removed by the crew and reinstalled on other magazines when magazines are flown without a module.

The date and time imaged on each photograph by the DRM are used in conjunction with orbital mechanics data recorded during the mission to compute the Orbiter nadir position in latitude and longitude, the orbit, the altitude, and the sun elevation and azimuth for each camera exposure. These data are described further in section 4, table 4-2, and are listed in tables 4-3 and 4-4.

During Mission STS-28, Astronaut James Adamson performed the dual-photograph tests to document distinguishing polarizing characteristics of many types of scenes as recorded on a fast color film. These tests used two Hasselblad cameras fitted on a dual camera mount (figure 2-4) and boresighted for equivalent fields of view. An electronic shutter release allowed simultaneous exposures.

For example, with 100-mm lenses and crossed linear polarizers, Astronaut Adamson exposed Kodak Ektachrome 5036 (ASA 200) film on an ascending pass (orbit 33) from

the Sierra Madre Oriental Mountains in Mexico to the St. Lawrence Gulf in southeastern Canada. These exposures are recorded on rolls 85 and 86 on frames 2 through 81. Roll 85 was on the right side with the vertical polarizer; roll 86 was on the left side with the horizontal polarizer. There were several other variations with the dual camera mount; see table 4-1(b) for a detailed list.

At the beginning of a polarization observation series using the dual mount, the observer would align the mount so that the camera with the viewfinder would be observing either the maximum or minimum image brightness. Immediately after acquiring the first exposure of a scene, he would rotate the camera system approximately  $45^\circ$ , thereby acquiring four exposures of different polarizations of each scene. Three exposures are required to define precisely the phase angle of the incoming polarized light.

In addition, a single camera procedure was used in which the three exposures were taken by rotating the camera, with filter fixed, through three positions. In some series while observing the bidirectional effect, nine photographs were exposed: three on approach to the site, three over the site, and three on retreat from the site. See section 4, table 4-1(b), for a detailed list of polarizing photography combinations. During data processing, the time/space interval between exposures was adjusted with a computerized image warping model procedure to correlate similar image points.



Figure 2-1.- NASA-modified Hasselblad 500 EL/M camera.

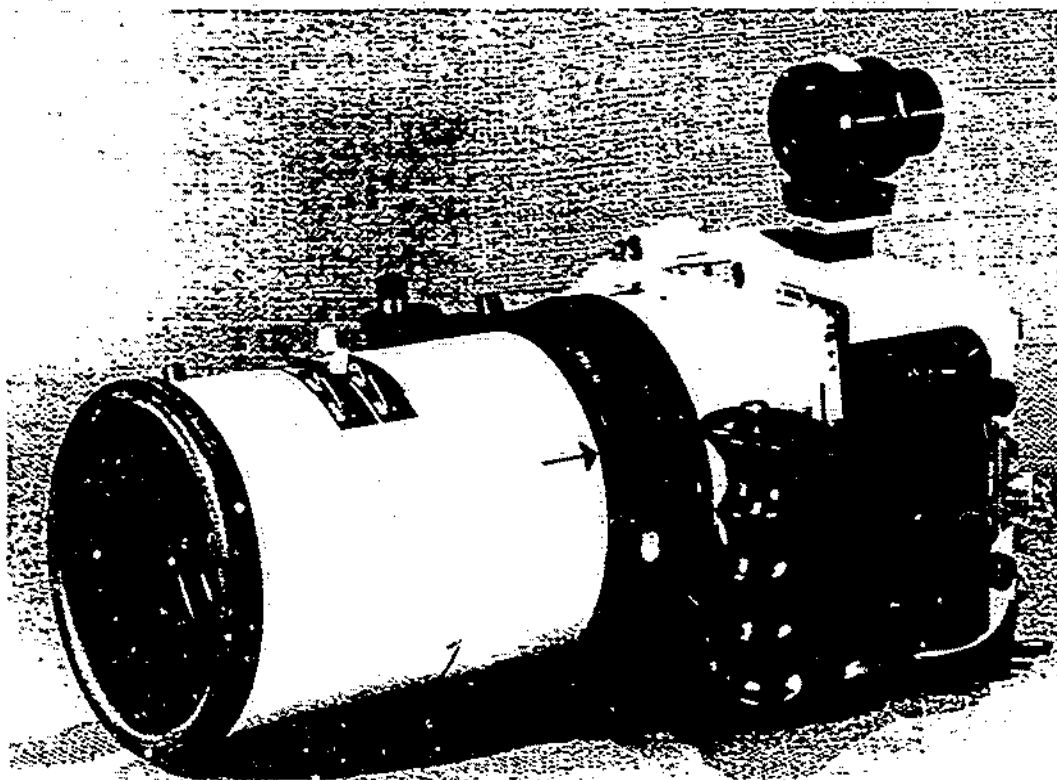


Figure 2-2.- Linhof Aero Technika camera.

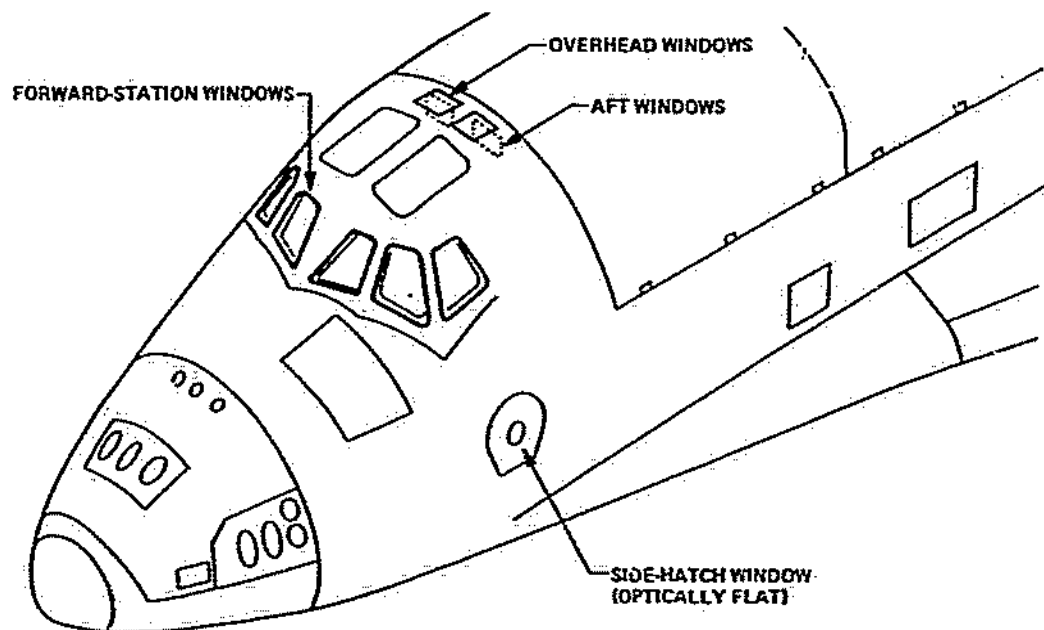


Figure 2-3.- Location of windows in the Shuttle Orbiter.

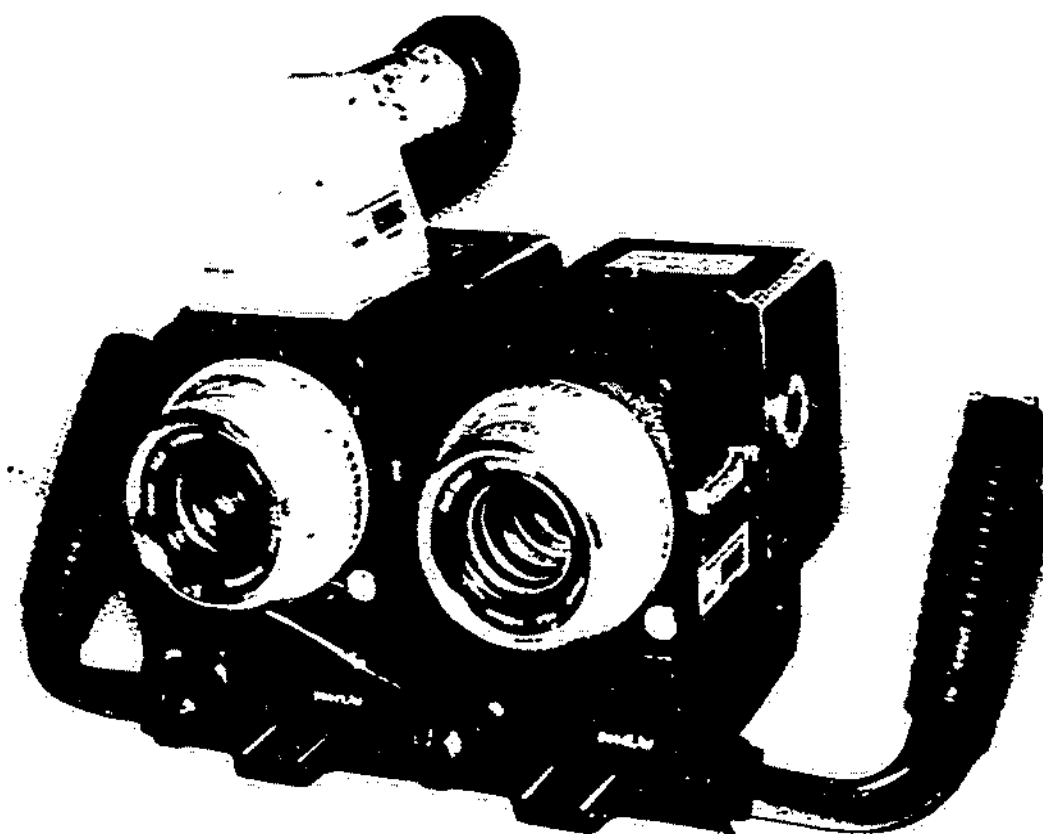


Figure 2-4.-Handheld Hasselblad cameras with dual mount.



### **3. PHOTOGRAPHY NUMBERING, SOURCES, AND ORDERING PROCEDURES**

#### **3.1 NUMBERING OF PHOTOGRAPHY**

Photographs are ordered using the mission, roll, and frame numbers as listed in section 4, tables 4-3 and 4-4. For example, STS-28-74-25 is the photo-ordering number for frame 25 of roll 74 from Mission STS-28.

#### **3.2 PHOTOGRAPHY SOURCES AND ORDERING PROCEDURES**

Earth-viewing Shuttle photography may be obtained from the following sources:

U.S. Geological Survey  
EROS Data Center  
Sioux Falls, SD 57198  
Telephone: (605) 594-6151

Technology Applications Center  
University of New Mexico  
Albuquerque, NM 87131  
Telephone: (505) 277-3622

Media Services Branch  
Still Photography Library  
NASA Lyndon B. Johnson Space Center  
P.O. Box 58425, Mail Code AP3  
Houston, TX 77258  
Telephone: (713) 483-4231

The SSEOO recommends that you visit a viewing center to select the image best satisfying your requirements before ordering a photograph. In addition to the sources listed above, table 3-1 provides a list of viewing centers. The Earth Sciences Information Center (ESIC), U.S. Geological Survey, has eight branches currently equipped with Shuttle photography microfilm and catalogs. Other organizations similarly equipped are the NASA Ames Research Center, California; the Library of Congress; the University of California at Santa Barbara; the Lunar and Planetary Institute, Houston; and the Smithsonian Institution. These centers provide excellent browse/viewing capabilities helpful in ordering photographs.

**TABLE 3-1. PHOTOGRAPHY, VIEWING CENTERS**  
**[All of these centers receive microfilm and catalogs.]**

**NASA - NASA DATA FACILITY**

Bldg. 240, Rm. 219  
 NASA Ames Research Center  
 Moffett Field, CA 94305  
 (415) 604-6252

**U.S. GOVERNMENT - LIBRARY OF CONGRESS**

Geography & Map Division  
 Rm. B-01, Library of Congress  
 Madison Memorial Bldg.  
 1st and C Streets SE  
 Washington, D.C. 20540  
 (202) 707-6277

**UNIVERSITY ESIC AFFILIATE**

Map and Image  
 Laboratory and Library  
 University of California  
 Santa Barbara, CA 93106  
 (805) 961-2779/(805) 961-4049

**LUNAR AND PLANETARY INSTITUTE**

Planetary Image Center  
 3303 NASA Rd. 1  
 Houston, TX 77058  
 (713) 486-2136

**SMITHSONIAN INSTITUTION**

Air and Space Museum  
 Archives Division, Rm. 3100  
 6th and Independence Ave., SW  
 Washington, D.C. 20560  
 (202) 357-3133

**EARTH SCIENCE INFORMATION CENTERS (ESIC'S)**  
**U.S. GEOLOGICAL SURVEY**

**Anchorage-ESIC**  
 4230 University Dr.  
 Rm. 101  
 Anchorage, AK 99508-4664  
 (907) 561-5555/FTS (907) 271-4320

**Anchorage-ESIC**  
 U.S. Courthouse, Rm. 113  
 222 W. 7th Ave., Box 53  
 Anchorage, AK 99513-7546  
 (907) 271-4307/FTS (907) 271-4307

**Denver-ESIC**  
 169 Federal Bldg.  
 1961 Stout St.  
 Denver, CO 80294  
 (303) 844-4169/FTS 564-4169

**Lakewood-ESIC**  
 Box 25046, Federal Center  
 Denver, CO 80225  
 (303) 236-5829/FTS 776-5829

**Menlo Park-ESIC**  
 Rm. 3128, Bldg. 3 (MS 532)  
 345 Middlefield Rd.  
 Menlo Park, CA 94025  
 (415) 329-4390/FTS 459-4390

**Reston-ESIC**  
 507 National Center  
 Reston, VA 22092  
 (703) 860-6045/FTS 959-6045

**Rolla-ESIC**  
 1400 Independence Rd.  
 Rolla, MO 65401  
 (314) 341-0851/FTS 277-0851

**Stennis Space Center-ESIC**  
 Bldg. 3101  
 Stennis Space Center, MS 39529  
 (601) 688-3544/FTS 494-3544

## 4. FILM AND CATALOG LISTINGS

A photographic summary correlating roll numbers with film used during Mission STS-28 is provided in table 4-1(a). The summary of the polarization tests is listed in table 4-1(b).

The photography is cataloged and presented in two listings, with table 4-2 providing an explanation of the column headings used in the listings in tables 4-3 and 4-4.

Table 4-3 is listed by roll/frame sequence, and table 4-4 is listed by geographic name.

### FILM ADVISORY

- The film data as listed in table 4-1(a) are correct.
- It is emphasized, however, that some data on the identification frames imaged at the beginning of rolls 85 and 86 are incorrect. The incorrect data will be noticed by anyone working with either the full-size film or the microfilm.
- If there are questions about the roll/frame set, use the numbers from the DRM, as they are correct.
- If there are questions about the film type, the Kodak film catalog number is located on the edge of the film.

**TABLE 4-1.- PHOTOGRAPHIC SUMMARY FOR MISSION STS-28**

**(a) Film utilized**

ROLL NUMBERS	TYPE OF FILM
<b>HASSELBLAD CAMERAS WITH DRM</b>	
71-84 87-92 95-100	Kodak natural color Ektachrome Professional 5017, ASA 64
85-86	Kodak natural color Ektachrome 5036, ASA 200
93-94	Kodak Aerochrome Color Infrared 2443, ASA 160
<b>LINHOF CAMERA WITH DRM</b>	
153	Kodak natural color Ektachrome Professional 5017, ASA 64, Standard Base
151-152	Kodak natural color Ektachrome QX 868, ASA 64, Thin Base (5017 emulsion)

**(b) Polarization tests**

ROLL NUMBERS	CAMERA / POLARIZER COMBINATION	ORBIT (FRAME) NUMBERS
<b>DUAL CAMERA MOUNT</b>		
85	Right camera/vertical polarizer	33 (2-81)
86	Left camera/horizontal polarizer	33 (2-81)
85	Right camera/vertical polarizer	67 (82-86)
100	Left camera/horizontal polarizer	67 (63-67)
85	Right camera/vertical polarizer	67 (89-101)
86	Left camera/vertical polarizer	67 (82-95)
<b>SINGLE CAMERA METHOD</b>		
82		23 (95-103)
83		54 (63-68)
95		30 (40-100)

**TABLE 4-2.- EXPLANATION OF COLUMN HEADINGS USED  
IN TABLES 4-3 AND 4-4**

<b>RL</b> Number assigned to each roll of film	<b>FL</b> Focal length of lens used: Hasselblad - 50 mm, 100 mm, 250 mm Linhof - 90 mm, 250 mm
<b>FR</b> Frame number for the photograph	<b>E</b> Photographic exposure: O - Overexposed N - Normal exposure U - Underexposed F - Unsharp focus
<b>GEOGRAPHIC NAME</b> Usually the country where the center point of the photograph is located; may also be the name of an island chain, ocean, sea, or a single island if that is the only land in the photograph	<b>S</b> Possibility of a stereopair, either adjacent frames or frames relatively near on the same roll of film: N - No Y - Yes
<b>FEATURE</b> Feature of interest within the photograph (e.g., name of a specific landform, cloud pattern, etc.)	<b>DATE</b> Year, month, and day the photograph was taken
<b>CENTER LAT, LON</b> Latitude and longitude, determined to the nearest half degree, of the center point of the photograph	<b>GMT</b> Greenwich mean time of photographic acquisition
<b>NADIR LAT, LON</b> Coordinates, determined to the nearest tenth of a degree, of the point directly beneath the spacecraft	<b>AL</b> Shuttle altitude in nautical miles
<b>CC</b> Percentage of cloud cover	<b>SUN AZ</b> At the Shuttle nadir, the horizontal angle (azimuth) measured from north clockwise to the Sun
<b>TL</b> Tilt of the camera from Shuttle nadir: HO - High oblique (includes the horizon) LO - Low oblique NV - Near vertical	<b>SUN EL</b> Sun elevation angle at Shuttle nadir (measured from horizontal)  <b>OR</b> Orbit number

**TABLE 4-3. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR
71	1	USA-MT	FORT PECK LAKE	47.5N 106.5W	46.5N 105.7W	0 NV	100 U N	890808	15:49:16	161	109	39	
71	2	USA-MT	FORT PECK LAKE	47.5N 106.5W	46.5N 105.7W	0 NV	100 U N	890808	15:49:22	161	110	39	3
71	3	USA-MT	MISSOURI RIVER	48.0N 104.5W	48.7N 101.6W	5 NV	100 U N	890808	15:50:11	161	115	41	3
71	4		UNDEREXPOSED		51.4N 95.3W		100 U N	890808	15:51:27	161	124	43	3
71	5		UNDEREXPOSED		51.5N 94.9W		100 U N	890808	15:51:31	161	125	43	3
71	6		UNDEREXPOSED		52.0N 93.4W		100 U N	890808	15:51:48	161	127	44	3
71	7		UNDEREXPOSED		53.4N 89.8W		100 U N	890808	15:52:35	161	133	45	3
71	8		UNDEREXPOSED		53.6N 88.3W		100 U N	890808	15:52:43	161	135	45	3
71	9	CLOUDS	CLOUDS	1.3N 23.8E		100 HO	100 N H	890808	16:19:10	164	286	4	3
71	10	CLOUDS	CLOUDS	0.5N 23.4E		100 HO	100 N H	890808	16:19:24	164	286	3	3
71	11	CLOUDS	CLOUDS		0.4S 23.9E	100 HO	100 N H	890808	16:19:38	164	286	2	3
71	12	USA-HI	HAWAII	19.5N 155.5W	19.2N 156.2W	70 NV	100 N N	890808	17:10:33	161	78	14	4
71	13	CANADA-BC	VANCOUVER ISLAND	49.5N 126.5W	47.8N 126.3W	20 LO	100 N N	890808	17:20:18	161	112	48	4
71	14	CANADA-BC	VANCOUVER ISLAND	49.5N 125.8W	48.1N 125.7W	20 NV	100 N N	890808	17:20:25	161	113	48	4
71	15	CANADA-BC	VANCOUVER	49.6N 123.0W	49.5N 124.5W	10 LO	100 N N	890808	17:20:34	161	114	48	4
71	16	CANADA-BC	VANCOUVER	49.6N 122.5W	48.7N 124.5W	10 LO	100 N N	890808	17:20:41	161	115	41	4
71	17	CANADA-BC	VANCOUVER	49.5N 122.5W	49.5N 122.8W	5 NV	100 N N	890808	17:21:02	161	117	41	4
71	18	CANADA-BC	ROCKY MOUNTAINS	52.5N 120.8W	50.5N 129.5W	18 LO	100 N N	890808	17:21:30	161	121	42	4
71	19	CANADA-BC	ROCKY MOUNTAINS	52.5N 119.0W	50.4N 120.3W	5 LO	100 N N	890808	17:21:33	161	121	42	4
71	20	CANADA-BC	ROCKY MOUNTAINS	51.5N 118.6W	50.8N 119.7W	5 NV	100 N N	890808	17:21:39	161	122	42	4
71	21	CANADA-BC	ROCKY MOUNTAINS	50.5N 116.5W	51.2N 118.8W	5 NV	100 N N	890808	17:21:50	161	123	43	4
71	22	CANADA-A	CALGARY	51.5N 114.0W	52.9N 113.6W	60 LO	100 N N	890808	17:22:47	161	131	44	4
71	23	CANADA-S	SASKATCHEWAN RIVER	54.0N 103.5W	55.6N 102.5W	30 LO	100 N N	890808	17:24:37	161	147	47	4
71	24	CANADA-M	HUDSON BAY, HAYES RIVER	57.0N 92.5W	56.6N 95.3W	40 NV	100 N N	890808	17:25:42	161	158	48	4
71	25	MAURITANIA	COASTLINE, SAND DUNES	19.0N 15.0W	21.0N 12.0W	30 LO	100 N N	890808	17:43:42	164	283	22	4
71	26	MAURITANIA	COASTLINE, SAND DUNES	17.5N 15.0W	20.0N 11.3W	50 LO	100 N N	890808	17:44:00	164	280	21	4
71	27	MAURITANIA	SAND DUNES	18.0N 12.5W	19.3N 10.8W	10 LO	100 N N	890808	17:44:14	164	281	23	4
71	28	MAURITANIA	SAND DUNES	17.0N 12.5W	18.2N 10.1W	40 LO	100 N N	890808	17:44:34	164	281	19	4
71	44	CANADA-S	LAKE ATHABASCA	59.6N 109.5W	57.1N 109.7W	20 LO	100 N N	890808	18:57:25	162	170	49	5
71	45	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.7N 88.1W	70 LO	100 N N	890808	19:00:33	162	203	49	5
71	46	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.5N 87.4W	70 LO	100 N N	890808	19:00:40	162	204	49	5
71	47	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.5N 87.0W	70 LO	100 N N	890808	19:00:43	162	205	49	5
71	53	USA-AK	MALASPINA GLACIER	59.5N 148.5W	56.9N 137.0W	60 LO	100 N N	890808	20:27:20	162	183	48	6
71	54	CANADA-BC	WILLISTON LAKE	56.5N 124.5W	57.1N 127.4W	60 LO	100 N N	890808	20:28:42	162	178	49	6
71	55	CANADA-BC	WILLISTON LAKE	56.5N 124.5W	57.1N 126.7W	60 LO	100 N N	890808	20:28:48	162	179	49	6
71	56	CANADA-BC	WILLISTON LAKE	56.5N 124.0W	57.1N 126.3W	60 LO	100 N N	890808	20:28:51	162	178	49	6
71	57	CANADA-BC	WILLISTON LAKE	56.5N 123.5W	57.0N 123.4W	60 NV	100 N N	890808	20:29:16	162	184	49	6
71	58	CANADA-BC	PEACE RIVER	56.5N 120.8W	54.7N 119.7W	20 NV	100 N N	890808	20:29:48	162	189	49	6
71	59	CANADA-M	LAKE WINNIPEGOSIS	53.0N 100.5W	53.4N 100.9W	30 LO	100 N N	890808	20:32:45	162	219	48	6
71	60	CANADA-M	LAKE WINNIPEGOSIS	52.0N 99.5W	53.1N 100.8W	30 LO	100 N N	890808	20:32:54	162	220	47	6
71	61	CANADA-M	LAKE MANITOBA	51.0N 98.5W	52.1N 96.9W	40 LO	100 N N	890808	20:33:27	163	225	47	6
71	62	CANADA-O	LAKE SUPERIOR	48.0N 85.5W	47.6N 86.3W	50 NV	100 N N	890808	20:35:35	163	241	44	6
71	63	CANADA-O	LAKE HURON, GEORGIAN BAY	44.5N 81.8W	44.8N 81.5W	30 NV	100 N N	890808	20:36:44	163	249	42	6
71	64	BRAZIL	BAIA DE SAO MARCOS	2.0S 44.5W	1.7S 44.3W	20 NV	100 U N	890808	20:51:33	166	284	2	6
71	65	BRAZIL	BAIA DE SAO JOSE	2.5S 43.5W	2.9S 43.6W	30 NV	100 U N	890808	20:51:55	166	286	1	6
71	66	CLOUDS	CLOUDS		44.6N 158.4E	100 HO	100 O N	890808	21:50:19	161	183	34	7
71	67	CLOUDS	CLOUDS		44.6N 158.2E	100 HO	100 O N	890808	21:50:32	161	184	34	7
71	68	CLOUDS	CLOUDS		45.3N 160.5E	100 HO	100 O N	890808	21:50:48	161	185	37	7
71	69	CLOUDS	CLOUDS		45.9N 161.1E	100 HO	100 O N	890808	21:51:02	161	187	37	7
71	70	USA-AK	GULF OF ALASKA COASTLINE	59.5N 146.0W	57.1N 150.2W	70 LO	100 N N	890808	21:59:15	162	177	49	7
71	71	USA-AK	GULF OF ALASKA COASTLINE	60.8N 145.5W	57.1N 149.1W	70 LO	100 N N	890808	21:59:25	162	179	49	7
71	72	USA-AK	MALASPINA GLACIER	59.0N 143.0W	56.7N 142.5W	60 LO	100 N N	890808	22:00:22	162	189	49	7
71	73	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	55.7N 134.2W	70 LO	100 N N	890808	22:01:36	162	202	49	7
71	74	CANADA-BC	COAST MOUNTAINS	52.5N 127.0W	55.6N 133.8W	70 HO	100 N N	890808	22:01:40	162	203	49	7
71	75	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	55.4N 132.5W	50 HO	100 N N	890808	22:01:52	162	205	49	7
71	76	CANADA-BC	COAST MOUNTAINS	53.0N 127.8W	55.1N 131.2W	60 LO	100 N N	890808	22:02:04	162	207	49	7
71	77	CANADA-BC	COAST MOUNTAINS	53.0N 127.0W	54.8N 129.7W	50 LO	100 N N	890808	22:02:18	162	208	48	7
71	78	CANADA-BC	COAST MOUNTAINS	52.5N 126.0W	54.6N 128.5W	40 LO	100 N N	890808	22:02:30	162	211	48	7
71	79	CANADA-BC	COAST MOUNTAINS	52.0N 124.5W	54.2N 127.1W	40 LO	100 N N	890808	22:02:44	162	213	48	7
71	80	CANADA-BC	COAST MOUNTAINS	51.0N 123.0W	53.7N 125.2W	50 LO	100 N N	890808	22:03:03	162	216	48	7
71	81	CANADA-BC	ROCKY MOUNTAINS	52.0N 118.0W	52.7N 121.7W	60 LO	100 N N	890808	22:03:39	162	221	47	7
71	82	CANADA-BC	ROCKY MOUNTAINS	51.5N 117.5W	52.4N 120.7W	60 LO	100 N N	890808	22:03:50	162	223	47	7
71	83	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	52.0N 119.4W	60 LO	100 N N	890808	22:04:04	163	225	47	7
71	84	USA-MT	MISSOURI RIVER	47.5N 106.0W	51.0N 116.9W	50 HO	100 N N	890808	22:04:33	163	229	46	7
71	85	CANADA-A	CALGARY	51.0N 113.0W	50.6N 115.8W	30 LO	100 N N	890808	22:04:46	163	231	46	7
71	86	USA-MT	MISSOURI RIVER	48.0N 107.0W	49.8N 113.9W	30 HO	100 N N	890808	22:05:08	163	234	45	7
71	87	USA-MT	FORT PECK LAKE	48.0N 106.5W	48.4N 110.8W	5 LO	100 N N	890808	22:05:48	163	239	45	7
71	88	USA-NE	PLATTE RIVER	41.5N 101.5W	42.5N 101.1W	30 LO	100 N N	890808	22:08:08	163	253	40	7
71	89	USA-NE	PLATTE RIVER	41.0N 101.8W	42.0N 100.4W	5 NV	100 N Y	890808	22:08:20	163	255	40	7
71	90	USA-NE	PLATTE RIVER	40.5N 100.8W	41.7N 100.0W	5 NV	100 N Y	890808	22:08:26	163	255	40	7

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	AL AZ EL OR
71	91	USA-NE	PLATTE RIVER	48.5N 99.0W 41.3N	99.5W	0 NV	100 N Y 890808	22:08:34	163 256 39 7
71	92	USA-OK	OKLAHOMA CITY	36.0N 97.0W 38.0N	95.6W	30 LO	100 N N 890808	22:09:44	164 262 37 7
71	93	USA-OK	OKLAHOMA CITY	36.0N 97.0W 37.7N	95.1W	30 LO	100 N N 890808	22:09:52	164 262 36 7
71	94	USA-OK	OKLAHOMA CITY, TULSA	35.5N 96.5W 37.0N	94.4W	40 LO	100 N N 890808	22:10:05	164 263 36 7
71	95	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.6N	92.8W	50 NV	100 N Y 890808	22:10:34	164 266 34 7
71	96	USA-MS	MISSISSIPPI RIVER	33.5N 91.0W 34.3N	91.8W	50 NV	100 N Y 890808	22:10:57	164 267 34 7
71	97	USA-MS	MISSISSIPPI RIVER	33.0N 91.0W 34.2N	91.6W	40 NV	100 N Y 890808	22:11:02	164 267 34 7
71	98	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 33.7N	91.1W	50 NV	100 N Y 890808	22:11:13	164 268 33 7
71	99	USA-MS	MISSISSIPPI RIVER	33.5N 91.0W 33.6N	91.0W	50 NV	100 N Y 890808	22:11:15	164 268 33 7
71	100	USA-MS	MISSISSIPPI RIVER	32.5N 91.0W 33.4N	90.8W	40 NV	100 N Y 890808	22:11:18	164 268 33 7
71	101	USA-MS	MISSISSIPPI RIVER	32.0N 91.0W 33.2N	90.6W	30 NV	100 N Y 890808	22:11:22	164 268 33 7
71	102	USA-LA	MISSISSIPPI RIVER	31.0N 92.0W 32.8N	90.2W	50 NV	100 N Y 890808	22:11:21	164 269 33 7
71	103	CUBA	WESTERN END	22.5N 83.0W 23.3N	82.5W	60 HV	100 N Y 890808	22:14:33	165 278 25 7
71	104	CUBA	WESTERN END	22.5N 83.5W 23.0N	82.3W	60 NV	100 N Y 890808	22:14:38	165 278 24 7
71	105	CUBA	WESTERN END	22.5N 83.5W 22.3N	81.9W	60 NV	100 N Y 890808	22:14:50	165 279 24 7
72	1		EXTERNAL TANK			HO	250 N N		
72	2		EXTERNAL TANK			HO	250 N N		
72	3		EXTERNAL TANK			HO	250 N N		
72	4		EXTERNAL TANK			HO	250 N N		
72	5		EXTERNAL TANK			HO	250 N N		
72	6		EXTERNAL TANK			HO	250 N N		
72	7		EXTERNAL TANK			HO	250 N N		
72	8		EXTERNAL TANK			HO	250 N N		
72	9		EXTERNAL TANK			HO	250 N N		
72	10		EXTERNAL TANK			HO	250 N N		
72	11		EXTERNAL TANK			HO	250 N N		
72	12		DEBRIS				250 N N		
72	13		DEBRIS				250 N N		
72	14		EXTERNAL TANK			LO	250 U N		
72	15		UNDEREXPOSED				250 U N		
72	16		UNDEREXPOSED				250 U N		
72	17		UNDEREXPOSED				250 U N		
72	18		UNDEREXPOSED				250 U N		
72	19		UNDEREXPOSED				250 U N		
72	20		UNDEREXPOSED				250 U N		
72	21		UNDEREXPOSED		38.2N 94.3W		250 U N 890808	14:15:35	161 94 32 2
72	22		UNDEREXPOSED		48.0N 92.1W		250 U N 890808	14:16:14	161 97 33 2
72	23		UNDEREXPOSED		43.4N 87.7W		250 U N 890808	14:17:27	161 103 36 2
72	24	USA-MI	LAKE HURON	44.0N 83.0W 44.6N	85.9W	20 LO	250 N N 890808	14:17:55	161 105 37 2
72	25	USA-MI	LAKE HURON	43.5N 83.0W 44.7N	85.7W	10 LO	250 N N 890808	14:17:58	161 106 38 2
72	26		UNDEREXPOSED		38.3N 19.1E		250 U N 890808	14:37:03	163 263 36 2
72	27		UNDEREXPOSED		28.2N 28.6E		250 U N 890808	14:40:23	164 274 27 2
72	28		UNDEREXPOSED		26.1N 30.3E		250 U N 890808	14:41:03	164 276 25 2
72	29		UNDEREXPOSED		54.3N 85.7W		250 U N 890808	15:53:03	161 138 46 3
72	30		UNDEREXPOSED		54.4N 85.1W		250 U N 890808	15:53:09	161 139 46 3
72	31	CANADA-Q	LAC ROMANET	56.0N 68.0W 56.8N	69.2W	40 NV	250 N N 890808	15:55:34	162 163 48 3
72	32	CANADA-Q	RIVIERE GEORGE	56.5N 64.5W 57.0N	64.8W	50 NV	250 N N 890808	15:55:55	162 167 49 3
72	33	CANADA-N	COASTLINE	56.5N 61.5W 57.1N	64.6W	60 HV	250 N N 890808	15:56:14	162 170 49 3
72	34	USA-HI	HAWAII	19.5N 155.5W 16.4N	158.0W	00 LO	250 N N 890808	17:09:36	161 77 12 4
72	37	USA-HI	OAHU	21.5N 158.0W 17.5N	157.4W	70 LO	250 N N 890808	17:09:55	161 77 13 4
72	38	USA-HI	OAHU	21.5N 158.0W 18.3N	156.8W	70 LO	250 N N 890808	17:10:10	161 77 14 4
72	39	USA-HI	OAHU	21.5N 157.5W 19.1N	156.3W	70 LO	250 N N 890808	17:10:25	161 78 14 4
72	40		DEBRIS		31.1N 147.2W		250 N N 890808	17:14:11	161 86 25 4
72	41		DEBRIS		34.8N 143.0W		250 N N 890808	17:15:24	161 90 28 4
72	42	CANADA-BC	VANCOUVER ISLAND	49.0N 124.5W 48.7N	124.5W	5 NV	250 N N 890808	17:20:35	161 115 41 4
72	43	CANADA-BC	VANCOUVER	49.0N 123.6W 49.1N	123.7W	10 NV	250 N Y 890808	17:20:45	161 116 41 4
72	44	CANADA-BC	VANCOUVER	49.0N 123.0W 49.3N	123.3W	10 NV	250 N Y 890808	17:20:50	161 117 41 4
72	45	CANADA-BC	COAST MOUNTAINS	50.0N 123.0W 49.5N	122.9W	5 NV	250 N N 890808	17:20:55	161 117 41 4
72	46	CANADA-BC	COAST MOUNTAINS	50.5N 123.0W 49.7N	122.3W	0 NV	250 N N 890808	17:21:03	161 118 42 4
72	47	CANADA-BC	COAST MOUNTAINS	51.0N 122.5W 50.1N	121.5W	5 NV	250 N N 890808	17:21:12	161 119 42 4
72	48	CANADA-BC	QUESNEL LAKE	52.0N 120.5W 50.6N	120.2W	10 NV	250 N N 890808	17:21:28	161 121 42 4
72	49	CANADA-BC	ADAMS LAKE	51.0N 120.0W 50.9N	119.6W	5 NV	250 N N 890808	17:21:35	161 122 43 4
72	50	CANADA-BC	COLUMBIA RIVER	51.5N 118.5W 51.3N	118.4W	0 NV	250 N Y 890808	17:21:49	161 124 43 4
72	51	CANADA-BC	COLUMBIA RIVER	52.0N 118.0W 51.5N	117.8W	0 NV	250 N Y 890808	17:21:55	161 124 43 4
72	52	CANADA-BC	COLUMBIA RIVER	52.0N 118.0W 51.7N	117.3W	0 NV	250 N Y 890808	17:22:01	161 125 43 4
72	53	CANADA-A	COLUMBIA ICEFIELD	52.0N 117.0W 52.0N	116.6W	0 NV	250 N Y 890808	17:22:09	161 126 44 4
72	54	CANADA-A	SASKATCHEWAN RIVER	52.0N 116.5W 52.2N	116.0W	5 NV	250 N N 890808	17:22:15	161 127 44 4
72	55	CANADA-A	SASKATCHEWAN RIVER	52.5N 116.5W 52.5N	115.1W	20 NV	250 N Y 890808	17:22:25	161 128 44 4
72	56	CANADA-S	DORE LAKE, LAC LA PLONGE	55.0N 108.0W 54.7N	107.0W	30 NV	250 N N 890808	17:23:40	161 140 46 4
72	57	CANADA-S	SMOOTHSTONE LAKE, DORE L	55.0N 107.0W 54.8N	106.4W	40 NV	250 N N 890808	17:23:54	161 141 46 4

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
72	58	CANADA-M	FIRE, SMOKE	57.0N 97.0W 56.3N 97.4W	20 NV	250	N H	890808	17:25:17	161 155 48 4
72	59	CANADA-M	STEPHENS LAKE	56.5N 95.0W 56.5N 95.0W	30 NV	250	N H	890808	17:25:31	161 157 48 4
72	60	CANADA-M	NELSON RIVER	56.5N 94.0W 56.5N 94.0W	10 NV	250	N H	890808	17:25:39	161 158 48 4
72	61	CANADA-M	HUDSON BAY	57.0N 92.5W 56.7N 93.0W	5 NV	250	N Y	890808	17:25:49	161 160 48 4
72	62	CANADA-M	HUDSON BAY	57.0N 92.5W 56.0N 93.0W	20 NV	250	N Y	890808	17:25:56	161 161 48 4
72	63	CANADA-Q	LAC ROMANET	56.5N 93.0W 56.1N 93.2W	50 NV	250	N H	890808	17:25:58	162 160 49 4
73	1	CANADA-S	PETER POND LAKE	56.0N 109.0W 55.7N 111.6W	40 LO	250	N H	890811	19:24:40	162 178 50 53
73	2	CANADA-S	DORE LAKE, SMOOTHSTONE L	55.0N 107.5W 55.4N 110.1W	70 LO	250	N H	890811	19:24:54	162 180 50 53
73	3	CANADA-S	LAKE WINNEPEGOSIS	53.0N 100.5W 53.0N 102.7W	50 LO	250	N H	890811	19:26:06	162 192 51 53
73	4	CANADA-S	LAKE WINNEPEG	53.0N 99.0W 53.5N 101.6W	10 LO	250	N H	890811	19:26:17	162 194 51 53
73	5	CANADA-S	LAKE WINNEPEG	50.5N 97.0W 52.7N 98.7W	10 LO	250	N H	890811	19:26:47	162 199 51 53
73	6	USA-MI	LAKE SUPERIOR	47.5N 88.0W 49.0N 91.2W	20 LO	250	N H	890811	19:28:13	162 212 52 53
73	7	USA-MI	LAKE SUPERIOR	48.0N 86.5W 49.5N 90.6W	5 LO	250	N H	890811	19:28:21	162 213 52 53
73	8	USA-MI	LAKE HURON	46.0N 84.5W 48.0N 87.3W	30 LO	250	N H	890811	19:29:02	163 219 52 53
73	9	USA-MI	LAKE SUPERIOR	46.5N 86.0W 47.0N 87.0W	30 NV	250	N Y	890811	19:29:06	163 220 52 53
73	10	USA-MI	LAKE SUPERIOR	46.5N 86.0W 47.7N 86.8W	30 NV	250	N Y	890811	19:29:09	163 220 52 53
73	11	USA-MI	LAKE SUPERIOR	46.5N 86.0W 47.6N 86.5W	30 NV	250	N Y	890811	19:29:13	163 221 52 53
73	12	USA-MI	LAKE MICHIGAN	46.0N 86.0W 47.5N 86.3W	20 LO	250	N H	890811	19:29:16	163 221 52 53
73	13	USA-MI	STRAITS OF MACKINAC	46.0N 85.0W 47.3N 86.1W	10 NV	250	N Y	890811	19:29:19	163 222 52 53
73	14	USA-MI	STRAITS OF MACKINAC	46.0N 84.5W 47.2N 85.8W	30 NV	250	N Y	890811	19:29:22	163 222 52 53
73	15	USA-MI	LAKE HURON	46.0N 84.0W 47.1N 85.6W	10 NV	250	N H	890811	19:29:25	163 222 52 53
73	16	USA-MI	STRAITS OF MACKINAC	45.5N 84.5W 46.0N 85.3W	30 NV	250	N H	890811	19:29:30	163 223 52 53
73	17	USA-MI	LAKE MICHIGAN	46.0N 85.5W 46.5N 84.5W	10 NV	250	N Y	890811	19:29:41	163 225 52 53
73	18	USA-MI	LAKE SUPERIOR	46.5N 85.5W 46.3N 84.3W	20 NV	250	N Y	890811	19:29:46	163 225 52 53
73	19	USA-MI	SAGINAW BAY	43.5N 84.0W 45.0N 83.5W	30 LO	250	N H	890811	19:29:55	163 227 51 53
73	20	USA-MI	SAGINAW BAY	43.5N 83.5W 45.7N 83.2W	50 LO	250	N H	890811	19:29:59	163 227 51 53
73	21	USA-MI	LAKE HURON	44.5N 83.5W 45.5N 82.9W	40 LO	250	N H	890811	19:30:04	163 228 51 53
73	22	USA-OH	LAKE ERIE, TOLEDO	41.5N 83.5W 45.2N 82.4W	00 LO	250	N H	890811	19:30:11	163 229 51 53
73	23	USA-OH	LAKE ERIE	41.5N 82.0W 45.1N 82.2W	00 LO	250	N H	890811	19:30:14	163 229 51 53
73	24	USA-MI	LAKE HURON	43.0N 82.5W 44.2N 81.5W	50 NV	250	N H	890811	19:30:20	163 230 51 53
73	25	USA-MI	LAKE HURON, THUNDER BAY	45.0N 83.5W 44.2N 80.0W	20 NV	250	N H	890811	19:30:34	163 232 51 53
73	26	USA-MI	LAKE HURON, THUNDER BAY	44.5N 83.5W 42.6N 78.4W	50 LO	250	N H	890811	19:31:12	163 237 50 53
73	27	USA-MI	LAKE HURON	43.5N 82.5W 42.3N 78.0W	60 LO	250	N H	890811	19:31:18	163 237 50 53
73	28	USA-MI	LAKE HURON	43.0N 82.5W 42.2N 77.9W	70 LO	250	N H	890811	19:31:20	163 238 50 53
73	29	CANADA-O	LAKE HURON	45.0N 81.5W 41.0N 77.6W	60 LO	250	N H	890811	19:31:26	163 238 50 53
73	30	USA-AK	KYCHAK BAY	58.5N 157.5W 56.6N 163.0W	50 LO	250	N H	890811	20:50:57	161 134 42 54
73	31	USA-AK	ALASKA PENINSULA	57.5N 158.0W 56.7N 163.3W	70 LO	250	N H	890811	20:51:01	161 137 42 54
73	32	USA-AK	ALASKA PENINSULA	56.5N 159.0W 56.7N 163.0W	70 LO	250	N H	890811	20:51:04	161 137 42 54
73	33	USA-AK	ALASKA PENINSULA	56.5N 158.5W 56.0N 162.2W	60 LO	250	N H	890811	20:51:11	161 138 43 54
73	34	USA-AK	GLACIERS, MOUNTAINS	60.5N 142.5W 57.1N 157.0W	50 NO	250	N H	890811	20:51:56	161 145 44 54
73	35	USA-AK	GLACIERS, MOUNTAINS	59.5N 139.0W 57.1N 156.5W	70 HO	250	N H	890811	20:52:00	161 146 44 54
73	36	USA-AK	ST. ELIAS MOUNTAINS	58.0N 135.0W 57.1N 156.1W	60 HO	250	N H	890811	20:52:03	161 146 44 54
73	37	USA-AK	ISLANDS, COAST MOUNTAINS	56.5N 132.5W 56.3N 138.0W	30 LO	250	N H	890811	20:54:33	162 171 49 54
73	38	USA-AK	ISLANDS, COAST MOUNTAINS	56.0N 132.0W 56.1N 137.1W	20 LO	250	N H	890811	20:54:48	162 174 49 54
73	39	USA-AK	REVILLAGIGEDO ISLAND	55.5N 131.0W 55.8N 135.1W	5 LO	250	N H	890811	20:55:06	162 177 49 54
73	40	USA-AK	REVILLAGIGEDO ISLAND	55.0N 131.5W 55.7N 134.4W	40 LO	250	N H	890811	20:55:12	162 178 50 54
73	41	USA-AK	REVILLAGIGEDO ISLAND	55.0N 131.5W 55.6N 133.0W	50 LO	250	N H	890811	20:55:18	162 179 50 54
73	42	USA-WA	CENTRAL WASHINGTON	47.5N 119.0W 53.9N 125.0W	30 HO	250	N H	890811	20:56:34	162 191 51 54
73	43	USA-ID	PRIEST LAKE	48.5N 117.0W 50.5N 115.9W	10 LO	250	N H	890811	20:58:24	162 208 52 54
73	44	USA-MT	FLATHEAD LAKE	48.0N 114.0W 50.4N 115.6W	60 LO	250	N H	890811	20:58:27	162 209 52 54
73	45	USA-MT	NORTH CENTRAL MONTANA	47.5N 111.0W 49.7N 113.0W	00 LO	250	N H	890811	20:58:47	162 212 52 54
73	46	USA-MT	MISSOURI RIVER	47.5N 110.5W 49.6N 113.6W	30 LO	250	N H	890811	20:58:51	162 213 52 54
73	47	USA-MT	MISSOURI RIVER	48.0N 109.0W 49.5N 113.4W	40 LO	250	N H	890811	20:59:54	162 213 52 54
73	48	USA-MT	MISSOURI RIVER	47.5N 110.0W 49.4N 113.1W	40 LO	250	N H	890811	20:59:57	162 213 52 54
73	49	USA-MT	JUDITH RIVER	47.6N 109.5W 49.3N 112.0W	50 LO	250	N H	890811	20:59:00	162 214 52 54
73	50	USA-MT	MUSSELSHELL RIVER	46.5N 109.5W 49.1N 112.5W	50 LO	250	N H	890811	20:59:05	162 215 52 54
73	51	USA-MT	MUSSELSHELL RIVER	46.5N 109.5W 48.7N 111.7W	50 LO	250	N H	890811	20:59:15	163 216 52 54
73	52	USA-MT	SOUTH CENTRAL MONTANA	45.5N 109.0W 48.3N 110.0W	60 LO	250	N H	890811	20:59:25	163 218 52 54
73	53	USA-MT	SOUTH CENTRAL MONTANA	46.0N 108.5W 48.2N 110.7W	60 LO	250	N H	890811	20:59:28	163 218 52 54
73	54	USA-MT	SOUTH CENTRAL MONTANA	45.0N 108.5W 47.8N 109.0W	60 LO	250	N H	890811	20:59:38	163 219 52 54
73	55	USA-MT	BILLINGS	45.5N 108.5W 46.7N 107.0W	30 NV	250	N H	890811	21:00:07	163 224 52 54
73	56	USA-NE	GRAND ISLAND	41.0N 98.0W 40.7N 98.0W	20 NV	250	N H	890811	21:02:28	163 241 50 54
73	57	USA-KS	SALINA	39.0N 97.5W 39.5N 97.5W	20 NV	250	N H	890811	21:02:50	163 244 49 54
73	58	USA-KS	WICHITA	37.5N 97.5W 38.1N 95.0W	30 NV	250	N H	890811	21:03:19	164 247 49 54
73	59	USA-OK	TULSA	36.0N 96.0W 37.0N 94.6W	50 NV	250	N H	890811	21:03:42	164 250 48 54
73	60	USA-LA	MISSISSIPPI RIVER	30.0N 91.0W 32.7N 90.4W	70 LO	250	N H	890811	21:05:09	164 258 46 54
73	61	USA-FL	KEY WEST	24.5N 81.5W 23.3N 82.0W	40 NV	250	N H	890811	21:09:09	165 271 39 54
73	62	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB	15.5N 100.2E	HO	250	N H	890811	22:05:06	161 73 4 55
73	63	USSR-PACIFIC	MOUNTAINS, CLOUDS	42.2N 132.6E	60 LO	250	N H	890811	22:13:46	161 88 21 55
73	64	USSR-PACIFIC	MOUNTAINS, CLOUDS	43.0N 133.6E	60 LO	250	N H	890811	22:14:02	161 89 22 55



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E & DATE	GMT	SUN AL AZ EL OR
73	65	USSR-PACIFIC	MOUNTAINS, CLOUDS		46.1N 138.5E	70	LO	250	N N 890811	22:15:16	161 95 26 55
73	66	USSR-PACIFIC	MOUNTAINS, CLOUDS		46.3N 138.8E	70	LO	250	N N 890811	22:15:21	161 95 26 55
73	67	USSR-PACIFIC	MOUNTAINS, CLOUDS		47.3N 140.7E	50	LO	250	N N 890811	22:15:46	161 97 27 55
73	68	USSR-PACIFIC	MOUNTAINS, CLOUDS		47.5N 140.9E	40	LO	250	N N 890811	22:15:49	161 97 27 55
73	69	USSR-PACIFIC	MOUNTAINS, CLOUDS		48.0N 141.9E	60	LO	250	N N 890811	22:16:33	161 98 28 55
73	70	USSR-PACIFIC	SAKHALIN	51.0N 143.0E	48.4N 142.8E	40	LO	250	N N 890811	22:16:18	161 99 28 55
73	71	USSR-PACIFIC	SAKHALIN	51.5N 143.0E	48.5N 142.9E	50	LO	250	N N 890811	22:16:16	161 99 28 55
73	72	USSR-PACIFIC	SAKHALIN	52.5N 143.8E	48.8N 143.1E	60	LO	250	N N 890811	22:16:18	161 100 28 55
73	73	USSR-PACIFIC	SAKHALIN	53.0N 143.8E	48.7N 143.3E	70	LO	250	N N 890811	22:16:21	161 100 28 55
73	74	USSR-PACIFIC	KAMCHATKA PENINSULA	54.0N 161.0E	52.3N 152.1E	70	LO	250	N N 890811	22:18:05	161 119 33 55
73	75	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 160.5E	52.5N 153.0E	30	HO	250	N N 890811	22:18:18	161 111 34 55
73	76	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 160.5E	52.7N 153.5E	30	HO	250	N N 890811	22:18:28	161 112 34 55
73	77	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 162.0E	52.9N 154.0E	40	LO	250	N N 890811	22:18:25	161 112 34 55
73	78	USSR-PACIFIC	KAMCHATKA PENINSULA	57.5N 163.0E	53.8N 154.3E	50	LO	250	N N 890811	22:18:28	161 112 34 55
73	79	USSR-PACIFIC	KAMCHATKA PENINSULA	57.8N 162.0E	53.3N 155.6E	50	LO	250	N N 890811	22:18:42	161 114 35 55
73	80	USSR-PACIFIC	KAMCHATKA PENINSULA	56.8N 160.5E	53.6N 156.7E	50	LO	250	N N 890811	22:18:53	161 115 34 55
73	81	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 160.8E	53.8N 157.4E	50	LO	250	N N 890811	22:19:00	161 116 34 55
73	82	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 159.0E	54.2N 158.8E	30	LO	250	N N 890811	22:19:15	161 118 34 55
73	83	USSR-PACIFIC	KAMCHATKA PENINSULA	55.5N 157.0E	54.7N 160.8E	90	LO	250	N N 890811	22:19:34	161 120 37 55
73	84	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 158.0E	54.8N 161.2E	80	LO	250	N N 890811	22:19:38	161 121 37 55
73	85	USSR-PACIFIC	KAMCHATKA PENINSULA	57.0N 158.5E	55.0N 162.5E	20	LO	250	N N 890811	22:19:38	161 122 38 55
73	86	USSR-PACIFIC	KAMCHATKA PENINSULA	55.0N 159.0E	55.1N 163.0E	60	LO	250	N N 890811	22:19:55	161 123 38 55
73	87	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 160.8E	55.2N 163.4E	40	LO	250	N N 890811	22:19:58	161 124 38 55
73	88	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 161.5E	55.3N 164.1E	40	LO	250	N N 890811	22:20:06	161 124 39 55
73	89	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 162.5E	55.7N 165.9E	10	LO	250	N N 890811	22:20:22	161 127 39 55
73	90	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 162.0E	55.7N 166.1E	10	LO	250	N N 890811	22:20:24	161 127 39 55
73	91	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 163.8E	55.8N 166.5E	50	LO	250	N N 890811	22:20:28	161 127 40 55
73	92	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 163.0E	55.8N 167.0E	20	LO	250	N N 890811	22:20:32	161 128 40 55
73	93	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 163.5E	56.0N 168.1E	30	LO	250	N N 890811	22:20:42	161 129 40 55
73	94	USSR-PACIFIC	KAMCHATKA PENINSULA	59.0N 164.5E	56.1N 168.5E	40	LO	250	N N 890811	22:20:46	161 130 40 55
73	95	USSR-MIDDLE	KRASNOYARSK	56.0N 93.0E	55.2N 90.4E	80	LO	250	N N 890812	05:58:42	162 179 50 48
73	96	USSR-MIDDLE	KRASNOYARSK	56.0N 93.5E	55.0N 91.6E	80	LO	250	N N 890812	05:58:53	162 180 50 48
73	97	USSR-MIDDLE	LAKE BAYKAL	52.0N 105.5E	51.6N 103.4E	80	LO	250	N N 890812	06:00:55	162 200 52 48
73	98	USSR-MIDDLE	LAKE GUSINYE	51.0N 106.5E	51.0N 105.2E	90	NV	250	N N 890812	06:01:16	162 203 52 48
73	99	MONGOLIA	BARUUN URT	46.5N 113.5E	47.0N 113.7E	0	NV	250	N N 890812	06:03:03	163 219 53 48
73	100	CHINA	AGRICULTURE	45.0N 116.5E	45.4N 116.5E	0	NV	250	N N 890812	06:03:43	163 225 52 48
73	101	CHINA	ANSHAN, HAICHENG, LIAOYANG	41.0N 123.0E	42.0N 121.5E	70	NV	250	N N 890812	06:05:00	163 235 52 48
73	102	CHINA	ANSHAN, HAICHENG	41.0N 123.0E	41.2N 122.6E	60	NV	250	N N 890812	06:05:18	163 237 51 48
73	103	JAPAN	KYUSHU, HOKSHU	33.5N 131.5E	35.1N 129.4E	30	LO	250	N N 890812	06:07:24	164 251 49 48
73	104	JAPAN	SHIKOKU	33.5N 133.5E	34.2N 130.3E	40	LO	250	N N 890812	06:07:42	164 253 49 48
74	1	USSR-EUROPEAN	BLACK SEA	46.5N 31.5E	44.6N 31.2E	0	NV	250	N N 890811	11:58:17	163 228 51 48
74	2	USSR-EUROPEAN	NKOLAYEV	47.0N 32.0E	45.3N 32.3E	5	NV	250	N N 890811	11:58:34	163 231 50 48
74	3	USSR-EUROPEAN	NKHERSON, DNEPR RIVER	46.5N 32.5E	45.2N 32.6E	0	NV	250	N N 890811	11:58:38	163 231 50 48
74	4	USSR-EUROPEAN	BLACK SEA	46.0N 33.5E	45.0N 32.9E	5	NV	250	N N 890811	11:58:43	163 232 50 48
74	5	USSR-EUROPEAN	BLACK SEA	45.5N 33.0E	44.8N 33.2E	5	NV	250	N N 890811	11:58:47	163 232 50 48
74	6	USSR-EUROPEAN	BLACK SEA	44.5N 33.5E	44.7N 33.4E	20	NV	250	N Y 890811	11:58:50	163 233 50 48
74	7	USSR-EUROPEAN	BLACK SEA	44.5N 33.5E	44.4N 33.9E	5	NV	250	N Y 890811	11:58:57	163 234 50 48
74	8	USSR-EUROPEAN	BLACK SEA	45.0N 36.5E	43.6N 35.0E	20	NV	250	N N 890811	11:59:15	163 236 50 48
74	9	USSR-EUROPEAN	BLACK SEA COASTLINE	43.5N 40.5E	40.3N 39.5E	70	LO	250	N N 890811	12:00:28	163 244 48 48
74	10	USSR-EUROPEAN	BLACK SEA COASTLINE	43.0N 41.5E	40.1N 39.7E	60	LO	250	N N 890811	12:00:31	163 245 48 48
74	11	USSR-EUROPEAN	CAUCASUS MOUNTAINS	43.0N 42.5E	40.8N 39.8E	70	LO	250	N N 890811	12:00:34	163 245 48 48
74	12	TURKEY	MOUNTAINS, CLOUDS		39.6N 40.3E	50		250	N N 890811	12:00:43	164 246 48 48
74	13	TURKEY	MOUNTAINS, CLOUDS		39.5N 40.4E	40		250	N N 890811	12:00:45	164 246 48 48
74	14	IRAQ	DIYALA RIVER	34.5N 45.0E	34.7N 45.6E	0	NV	250	N Y 890811	12:02:23	164 254 45 48
74	14 A	IRAQ	DIYALA RIVER	34.5N 45.0E		0	NV	250	N Y		
74	15	IRAN	IRAQ BORDER	32.0N 48.5E	31.8N 48.2E	0	NV	250	N Y 890811	12:03:19	164 261 44 48
74	16	IRAN	IRAQ BORDER	32.0N 48.5E	31.2N 48.8E	0	NV	250	N Y 890811	12:03:52	164 262 43 48
74	17	IRAN	IRAQ BORDER	31.5N 48.5E	31.1N 48.9E	0	NV	250	N Y 890811	12:03:55	164 262 43 48
74	18	IRAN	IRAQ BORDER	31.5N 48.5E	30.8N 49.1E	0	NV	250	N Y 890811	12:03:59	164 262 43 48
74	19	IRAN	IRAQ BORDER	31.5N 48.9E	30.4N 49.5E	5	NV	250	N Y 890811	12:03:48	164 263 43 48
74	20	USA-MO	MISSOURI RIVER	40.0N 95.0W	37.4N 95.4W	20	LO	250	N N 890811	13:09:57	161 84 18 49
74	21	USA-MO	MISSOURI RIVER	39.5N 94.5W	37.9N 94.9W	50	LO	250	N N 890811	13:10:07	161 84 18 49
74	22	USA-IA	MISSISSIPPI RIVER	41.0N 91.0W	41.3N 90.8W	5	NV	250	N N 890811	13:11:20	161 88 22 49
74	23	USA-IL	MISSISSIPPI RIVER	41.5N 90.5W	41.7N 90.3W	0	NV	250	N N 890811	13:11:28	161 89 22 49
74	24	USA-IL	CHICAGO	42.0N 88.0W	42.2N 89.5W	30	NV	250	N N 890811	13:11:41	161 90 23 49
74	25	USA-WI	GREEN BAY, LAKE MICHIGAN	44.5N 88.0W	43.9N 87.1W	30	NV	250	N N 890811	13:12:19	161 92 25 49
74	26	USA-WI	LAKE MICHIGAN	45.0N 88.0W	44.3N 86.5W	10	NV	250	N Y 890811	13:12:28	161 93 25 49
74	27	USA-WI	LAKE MICHIGAN	45.0N 87.0W	44.6N 86.1W	20	NV	250	N Y 890811	13:12:34	161 93 25 49
74	28	USA-WI	LAKE MICHIGAN	44.5N 86.0W	45.1N 85.3W	5	NV	250	N Y 890811	13:12:47	161 94 26 49
74	29	USA-MI	LAKE MICHIGAN	45.0N 85.5W	45.3N 85.0W	0	NV	250	N Y 890811	13:12:51	161 95 26 49

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL OR
74	30	USA-MI	LAKE HURON, SAGNAW BAY	44.0N 83.0W	45.7N 84.3W	5	LO	250	N	N	890811	13:13:01	161 95 27 49
74	31	USA-MI	LAKE HURON, THUNDER BAY	45.0N 83.5W	46.9N 83.8W	8	NV	250	N	N	890811	13:13:06	161 96 27 49
74	32	USA-MI	LAKE HURON	45.5N 84.0W	46.1N 83.7W	8	NV	250	N	Y	890811	13:13:10	161 96 27 49
74	33	USA-MI	STRAITS OF MACKINAC	45.5N 84.5W	46.2N 83.5W	8	NV	250	N	Y	890811	13:13:12	161 96 27 49
74	34	USA-MI	STRAITS OF MACKINAC	46.0N 85.0W	46.4N 83.1W	5	LO	250	N	N	890811	13:13:18	161 97 27 49
74	35	USA-MI	LAKE HURON, SAGNAW BAY	44.0N 83.0W	47.2N 81.7W	18	LO	250	N	N	890811	13:13:38	161 98 28 49
74	36	BRITAIN	BRISTOL CHANNEL	51.5N 3.0W	51.6N 3.8W	70	NV	250	N	N	890811	13:26:17	162 206 51 49
74	37	BRITAIN	ENGLISH CHANNEL	50.5N 2.5W	51.4N 3.3W	50	NV	250	N	N	890811	13:26:23	162 207 51 49
74	38	BRITAIN	ISLE OF WIGHT	50.5N 1.5W	51.3N 2.9W	40	NV	250	N	Y	890811	13:26:27	162 208 51 49
74	39	BRITAIN	ISLE OF WIGHT	50.5N 1.0W	51.2N 2.7W	50	NV	250	N	Y	890811	13:26:30	162 208 51 49
74	40	BRITAIN	ISLE OF WIGHT	51.0N 1.0W	51.1N 2.4W	60	NV	250	N	Y	890811	13:26:33	162 209 51 49
74	41	BRITAIN	LONDON	51.5N 0.5W	50.7N 1.4W	60	NV	250	N	N	890811	13:26:45	162 210 51 49
74	42	SWITZERLAND	ALPS	46.0N 7.5E	47.7N 5.3E	50	LO	250	N	N	890811	13:28:00	163 222 51 49
74	43	SWITZERLAND	ALPS	46.5N 8.0E	47.5N 5.5E	50	LO	250	N	N	890811	13:28:11	163 223 51 49
74	44	SWITZERLAND	ALPS	46.5N 8.5E	47.4N 5.7E	80	LO	250	N	N	890811	13:28:14	163 223 51 49
74	45	SWITZERLAND	ALPS	47.0N 8.0E	47.1N 6.3E	50	NV	250	N	N	890811	13:28:22	163 224 51 49
74	46	SWITZERLAND	BODENSEE	47.5N 9.5E	46.4N 7.5E	50	LO	250	N	N	890811	13:28:33	163 227 51 49
74	47	SWITZERLAND	LAKE COMO	46.0N 9.0E	45.9N 8.4E	60	NV	250	N	N	890811	13:28:51	163 228 51 49
74	48	ITALY	GULF OF GENOA	44.5N 9.0E	45.0N 9.8E	20	NV	250	N	N	890811	13:29:12	163 231 51 49
74	49	ITALY	LIGURIAN SEA	44.0N 10.9E	44.6N 10.6E	60	NV	250	N	N	890811	13:29:23	163 233 50 49
74	50	ITALY	NAPOLE VESUVIUS	41.0N 14.5E	42.2N 13.9E	60	NV	250	N	Y	890811	13:30:16	163 239 50 49
74	51	ITALY	NAPOLE VESUVIUS	41.0N 14.5E	42.0N 14.3E	50	NV	250	N	Y	890811	13:30:22	163 240 49 49
74	52	GREECE	PELOPONNESUS PENINSULA	37.0N 21.5E	37.8N 19.3E	10	LO	250	N	N	890811	13:31:49	164 249 47 49
74	53	GREECE	PELOPONNESUS PENINSULA	36.0N 23.0E	37.6N 19.6E	5	LO	250	N	N	890811	13:31:56	164 250 47 49
74	54	GREECE	PELOPONNESUS PENINSULA	36.5N 22.5E	37.4N 19.8E	5	LO	250	N	N	890811	13:32:00	164 250 47 49
74	55	GREECE	PELOPONNESUS PENINSULA	36.5N 21.5E	36.8N 20.5E	10	NV	250	N	N	890811	13:32:12	164 252 47 49
74	56	GREECE	KIRITHA ISLAND	36.0N 23.0E	36.2N 21.1E	5	LO	250	N	N	890811	13:32:25	164 253 46 49
74	57	GREECE	PELOPONNESUS PENINSULA	36.5N 22.0E	35.3N 22.0E	10	NV	250	N	N	890811	13:32:42	164 254 45 49
74	58	CRETE	WESTERN END	35.5N 24.0E	34.8N 22.5E	5	NV	250	N	N	890811	13:32:52	164 255 46 49
74	59	LIBYA	TUBRUQ, AL ADAM	32.0N 24.0E	33.0N 24.3E	5	NV	250	N	N	890811	13:33:29	164 259 45 49
74	60	EGYPT	ALEXANDRIA	31.0N 30.0E	30.6N 26.4E	5	LO	250	N	N	890811	13:34:15	164 262 43 49
74	61	EGYPT	NILE RIVER DELTA	30.5N 30.5E	30.3N 26.7E	5	LO	250	N	N	890811	13:34:22	164 263 43 49
74	62	EGYPT	CAIRO, NILE RIVER DELTA	30.0N 31.0E	29.6N 27.2E	0	LO	250	N	N	890811	13:34:34	164 264 42 49
74	63	EGYPT	CAIRO, NILE RIVER DELTA	30.0N 31.0E	28.9N 27.8E	0	LO	250	N	N	890811	13:34:44	164 265 42 49
74	64	EGYPT	NILE RIVER, ASYUT	27.5N 31.0E	26.7N 29.6E	8	NV	250	N	N	890811	13:35:31	165 268 40 49
74	65	EGYPT	ASWAN DAM, LAKE NASSER	24.0N 33.0E	24.1N 31.5E	0	NV	250	N	N	890811	13:36:19	165 271 38 49
74	66	ETHIOPIA	SANDSTORM	16.0N 39.0E	16.4N 36.8E	20	LO	250	N	N	890811	13:38:42	165 278 32 49
74	67	ETHIOPIA	SANDSTORM	15.5N 39.0E	15.5N 37.3E	30	LO	250	N	N	890811	13:38:57	165 279 32 49
74	68	USA-CA	SANTA YNEZ MOUNTAINS	34.5N 119.5W	35.7N 120.2W	60	NV	250	N	N	890811	14:39:55	161 82 16 50
74	69	USA-CA	LOS ANGELES	34.0N 118.0W	35.9N 120.0W	40	LO	250	N	N	890811	14:39:59	161 82 16 50
74	70	CANADA-BC	ROCKY MOUNTAINS	50.0N 115.0W	42.7N 111.0W	20	LO	250	N	N	890811	14:42:23	161 90 23 50
74	71	USA-MT	ROCKY MOUNTAINS	48.0N 116.5W	43.8N 110.4W	5	LO	250	N	N	890811	14:42:47	161 92 24 50
74	72	USA-WA	MOUNT RAINIER	47.5N 121.5W	45.1N 108.3W	30	HO	250	N	N	890811	14:43:18	161 94 26 50
74	73	USA-WA	CASCADE MOUNTAIN RANGE	49.0N 120.5W	45.2N 106.1W	40	HO	250	N	N	890811	14:43:21	161 94 26 50
74	74	CANADA-A	ROCKY MOUNTAINS	51.5N 114.0W	48.0N 103.2W	50	HO	250	N	N	890811	14:44:38	161 100 29 50
74	75	CANADA-O	ASHEWEG RIVER	54.5N 87.5W	54.1N 86.5W	0	NV	250	N	N	890811	14:47:39	161 119 37 50
74	76	CANADA-O	JAMES BAY	53.0N 82.0W	55.1N 82.3W	40	LO	250	N	N	890811	14:48:20	161 125 39 50
74	77	CANADA-O	HUDSON BAY	55.0N 82.5W	55.2N 81.7W	20	NV	250	N	N	890811	14:48:26	161 125 39 50
74	78	SPAIN	ROTA, CADIZ	37.0N 6.0W	38.0N 4.8W	0	LO	250	N	Y	890811	15:02:02	163 247 48 50
74	79	SPAIN	ROTA, CADIZ	36.5N 6.0W	38.6N 4.5W	0	LO	250	N	Y	890811	15:02:07	163 247 48 50
74	80	SPAIN	STRAIT OF GIBRALTAR	36.0N 6.0W	38.3N 4.2W	5	LO	250	N	N	890811	15:02:13	163 248 48 50
74	81	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W	38.1N 4.0W	0	LO	250	N	N	890811	15:02:16	163 248 48 50
74	82	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W	37.0N 2.7W	0	LO	250	N	N	890811	15:02:40	164 251 47 50
74	83	MOROCCO	STRAIT OF GIBRALTAR	36.0N 5.5W	36.8N 2.6W	0	LO	250	N	N	890811	15:02:43	164 251 47 50
74	84	MOROCCO	STRAIT OF GIBRALTAR	36.0N 5.0W	36.5N 2.3W	0	LO	250	N	N	890811	15:02:49	164 252 47 50
74	85	MOROCCO	MEDITERRANEAN COASTLINE	35.5N 4.0W	36.0N 1.6W	0	LO	250	N	N	890811	15:03:01	164 253 47 50
74	86	USA-WA	CASCADES, COASTLINE	46.5N 124.0W	44.3N 132.5W	50	LO	250	N	N	890811	16:13:31	161 92 24 51
74	87	USA-WA	OLYMPIC PENINSULA	47.5N 123.0W	44.5N 132.2W	70	LO	250	N	N	890811	16:13:36	161 93 25 51
74	88	USA-OR	CASCADES, COASTLINE	46.0N 128.0W	44.7N 132.8W	50	LO	250	N	N	890811	16:13:39	161 93 25 51
74	89	USA-WA	OLYMPIC PENINSULA	47.5N 122.5W	45.3N 134.9W	70	LO	250	N	N	890811	16:13:55	161 94 26 51
74	90	USA-MT	NORTHWESTERN MONTANA	47.0N 111.5W	52.5N 115.2W	30	LO	250	N	N	890811	16:17:11	161 112 35 51
74	91	USA-MT	NORTHWESTERN MONTANA	47.0N 110.5W	52.6N 114.9W	40	LO	250	N	N	890811	16:17:14	161 112 35 51
74	92	USA-MT	NORTHWESTERN MONTANA	47.0N 111.0W	52.0N 114.5W	30	LO	250	N	N	890811	16:17:18	161 113 35 51
74	93	USA-MT	NORTHWESTERN MONTANA	46.5N 110.5W	53.0N 113.8W	30	LO	250	N	N	890811	16:17:26	161 114 35 51
74	94	USA-MT	NORTHWESTERN MONTANA	47.5N 112.0W	53.1N 113.4W	10	LO	250	N	N	890811	16:17:30	161 114 35 51
74	95	USA-MT	NORTHWESTERN MONTANA	47.0N 111.0W	53.2N 113.0W	30	LO	250	N	N	890811	16:17:34	161 115 36 51
74	96	USA-MT	AGRICULTURE, MISSOURI R.	47.5N 110.5W	53.3N 112.7W	30	LO	250	N	N	890811	16:17:37	161 115 36 51
74	97	CANADA-O	RIVIERE EASTMAIN	52.5N 76.5W	53.4N 78.3W	5	LO	250	N	N	890811	17:54:51	162 195 51 52
74	98	USA-AK	COAST MOUNTAINS, ISLANDS	58.0N 134.0W	54.5N 142.3W	30	LO	250	N	N	890811	18:21:15	161 135 42 53
74	99	USA-AK	COAST MOUNTAINS, ISLANDS	57.5N 133.5W	56.6N 141.4W	30	LO	250	N	N	890811	18:21:23	161 136 42 53

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	SL	OR
74	100	USA-AK	COAST MOUNTAINS, ISLANDS	57.0N 133.0W	56.6N 140.0W	20	LO	250	H	N	890811	19:21:27	161	137	42	53
74	101	USA-AK	COAST MOUNTAINS, ISLANDS	56.5N 132.5W	56.6N 140.6W	30	LO	250	N	N	890811	19:21:30	161	137	42	53
75	1	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.1S 51.0W	HO	100	N	N	890808	22:29:53	165	278	20	7	
75	2	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.2S 50.9W	HO	100	N	N	890808	22:29:56	165	278	20	7	
75	3	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.4S 50.8W	HO	100	N	N	890808	22:29:59	165	278	21	7	
75	4	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.8S 50.3W	HO	100	N	N	890808	22:30:11	165	277	21	7	
75	5	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.1S 50.2W	HO	100	N	N	890808	22:30:13	165	277	21	7	
75	6	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.3S 50.1W	HO	100	N	N	890808	22:30:16	165	277	21	7	
75	7	VIETNAM	MEKONG RIVER DELTA	10.0N 106.3E	9.6N 105.8E	70	NV	100	N	Y	890808	23:09:48	162	75	4	8
75	8	VIETNAM	MEKONG RIVER DELTA	10.0N 106.3E	10.3N 106.3E	70	NV	100	N	Y	890808	23:10:01	162	75	5	8
75	9	PORTUGAL	CAPE SAINT VINCENT	38.0N 8.5W	38.1N 9.0W	50	NV	100	N	N	890809	08:22:19	161	93	29	14
75	10	SPAIN	CORD. CARPETOVETOMICA	40.5N 5.5W	39.9N 8.1W	5	LO	100	N	N	890809	08:22:35	161	94	30	14
75	11	SPAIN	CORD. CARPETOVETOMICA	41.0N 3.5W	41.5N 6.1W	5	LO	100	N	N	890809	08:23:10	161	96	32	14
75	12	SPAIN	CORDILLERA CANTABRICA	43.0N 5.0W	42.1N 5.3W	30	NV	100	N	Y	890809	08:23:23	161	97	32	14
75	13	SPAIN	CORDILLERA CANTABRICA	43.0N 5.5W	42.2N 5.1W	30	NV	100	N	Y	890809	08:23:26	161	98	32	14
75	14	SPAIN	CORDILLERA CANTABRICA	43.0N 3.5W	42.6N 4.6W	30	NV	100	N	Y	890809	08:23:34	161	98	33	14
75	15	SPAIN	PYRENEES	42.5N 0.0	43.2N 3.7W	40	LO	100	N	N	890809	08:23:48	161	99	33	14
75	16	SPAIN	PYRENEES	42.5N 0.5E	43.7N 3.1W	40	LO	100	N	N	890809	08:23:58	161	100	34	14
75	17	FRANCE	PYRENEES	43.0N 1.0E	45.0N 1.1W	30	LO	100	N	N	890809	08:24:28	161	103	35	14
75	18	FRANCE	GRONDE RIVER	45.5N 0.5W	45.7N 0.1E	0	NV	100	N	N	890809	08:24:46	161	104	35	14
75	19	FRANCE	EAST OF PARIS	48.5N 4.5E	48.0N 4.3E	20	NV	100	N	Y	890809	08:25:43	161	110	34	14
75	20	FRANCE	EAST OF PARIS	49.0N 4.5E	48.8N 5.0E	30	LO	100	N	Y	890809	08:26:03	161	112	34	14
75	21	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.0N 43.0E	57.1N 42.0E	80	NV	100	N	N	890809	08:32:04	161	163	48	14
75	22	USSR-EUROPEAN	VOLGA RIVER	54.5N 48.5E	57.1N 47.6E	80	LO	100	N	N	890809	08:32:52	162	172	49	14
75	23	USSR-EUROPEAN	VOLGA RIVER	54.5N 49.5E	57.1N 48.4E	100	LO	100	N	N	890809	08:32:59	162	173	49	14
75	24	USSR-MIDDLE	AGRICULTURE	54.0N 72.0E	54.3N 71.9E	60	NV	100	N	N	890809	08:34:30	162	209	49	14
75	25	USSR-MIDDLE	IRTYSH RIVER	51.0N 79.5E	52.7N 77.5E	30	LO	100	N	N	890809	08:37:28	162	218	48	14
75	26	USSR-MIDDLE	AGRICULTURE	51.5N 80.0E	52.2N 79.1E	20	NV	100	N	N	890809	08:37:45	162	221	48	14
75	27	USSR-MIDDLE	MOUNTAINS, CLOUDS	50.5N 84.0E	50.8N 82.8E	30	NV	100	N	Y	890809	08:38:27	163	227	47	14
75	28	USSR-MIDDLE	MOUNTAINS, CLOUDS	50.0N 84.5E	50.4N 83.3E	40	NV	100	N	Y	890809	08:38:33	163	228	47	14
75	29	USSR-MIDDLE	MOUNTAINS, CLOUDS	50.0N 85.0E	50.4N 83.9E	50	NV	100	N	Y	890809	08:38:40	163	229	47	14
75	30	USSR-MIDDLE	MOUNTAINS, CLOUDS	50.0N 85.5E	50.2N 84.4E	50	NV	100	N	Y	890809	08:38:46	163	229	47	14
75	31	USSR-MIDDLE	MOUNTAINS, CLOUDS	49.5N 86.0E	49.9N 85.0E	50	NV	100	N	Y	890809	08:38:53	163	230	47	14
75	32	USSR-MIDDLE	MOUNTAINS, CLOUDS	49.5N 86.5E	49.7N 85.5E	60	NV	100	N	Y	890809	08:39:00	163	231	47	14
75	33	USSR-MIDDLE	LAKE ZAYSAN	48.0N 84.5E	49.2N 84.7E	40	NV	100	N	Y	890809	08:39:14	163	233	46	14
75	34	USSR-MIDDLE	LAKE ZAYSAN	48.0N 85.0E	49.1N 84.9E	40	NV	100	N	Y	890809	08:39:17	163	233	46	14
75	35	CHINA	USSR BORDER	48.0N 86.5E	49.0N 87.1E	30	NV	100	N	Y	890809	08:39:19	163	234	46	14
75	36	MONGOLIA	CHINA/USSR BORDERS	48.5N 84.5E	48.4N 83.3E	60	NV	100	N	N	890809	08:39:35	163	236	46	14
75	37	CHINA	LAKE ULUNGAR, LAKE JILI	47.0N 88.0E	47.9N 89.2E	20	NV	100	N	Y	890809	08:39:47	163	237	46	14
75	38	CHINA	ULUNGAR RIVER	47.0N 89.0E	47.5N 90.0E	40	NV	100	N	Y	890809	08:39:57	163	238	45	14
75	39	CHINA	LAKE ULUNGAR, LAKE JILI	47.0N 88.0E	47.0N 90.0E	30	LO	100	N	N	890809	08:40:10	163	240	45	14
75	40	CHINA	GURBANTUNGUT DESERT	45.5N 88.5E	46.4N 91.4E	40	LO	100	N	N	890809	08:40:16	163	241	45	14
75	41	CHINA	GURBANTUNGUT DESERT	45.0N 88.5E	46.5N 91.9E	50	LO	100	N	N	890809	08:40:23	163	241	45	14
75	42	CHINA	BADARI JARAN DESERT	40.0N 101.5E	40.6N 100.5E	50	NV	100	N	Y	890809	08:42:37	164	255	41	14
75	43	CHINA	BADARI JARAN DESERT	40.0N 102.5E	40.3N 100.9E	50	NV	100	N	Y	890809	08:42:43	164	256	40	14
75	44	CHINA	WEI RIVER, XI'AN	34.5N 108.5E	34.5N 107.2E	60	NV	100	N	N	890809	08:44:43	164	265	34	14
75	45	CHINA	HAN RIVER, QIN MOUNTAINS	33.0N 108.0E	34.3N 107.5E	70	NV	100	N	N	890809	08:44:49	164	265	34	14
75	46	CHINA	YANGTZE RIVER, CLOUDS	31.0N 109.5E	32.4N 109.3E	90	NV	100	N	N	890809	08:45:26	164	268	34	14
75	47	CHINA	YANGTZE RIVER	29.0N 112.5E	29.2N 112.0E	50	NV	100	N	Y	890809	08:46:27	164	271	32	14
75	48	CHINA	YANGTZE RIVER	29.0N 112.5E	29.3N 112.0E	50	NV	100	N	Y	890809	08:46:45	164	272	31	14
75	49	CHINA	TUNG RIVER	24.0N 115.0E	25.1N 115.2E	60	NV	100	N	Y	890809	08:47:45	165	275	28	14
75	50	CHINA	TUNG RIVER	24.0N 114.5E	24.8N 115.5E	60	NV	100	N	Y	890809	08:47:52	165	276	28	14
75	51	CHINA	COASTLINE	22.5N 116.0E	23.3N 116.6E	30	NV	100	N	Y	890809	08:48:20	165	277	27	14
75	52	CHINA	COASTLINE	23.0N 116.5E	23.1N 116.7E	20	NV	100	N	Y	890809	08:48:23	165	277	27	14
75	53	CHINA	COASTLINE	23.5N 117.5E	22.8N 116.9E	20	NV	100	N	Y	890809	08:48:29	165	277	26	14
75	54	FRANCE	ENGLISH CHANNEL	48.5N 1.5W	54.3N 1.6W	70	HO	100	N	N	890809	09:59:30	161	133	44	15
75	55	NETHERLANDS	NORTH SEA COASTLINE	52.0N 3.5E	54.7N 0.1E	70	LO	100	N	N	890809	09:59:45	161	134	44	15
75	56	NETHERLANDS	USSELMEER	53.0N 5.5E	55.0N 1.6E	70	LO	100	N	N	890809	09:59:58	161	138	45	15
75	57	NORWAY	SOUTHERN COASTLINE	58.0N 7.5E	56.1N 8.3E	70	LO	100	N	N	890809	10:01:01	161	147	44	15
75	58	NORWAY	SOUTHERN COASTLINE	58.5N 7.0E	56.3N 8.4E	80	LO	100	N	N	890809	10:01:11	161	148	44	15
75	59	SWEDEN	GULF OF BOTHNA	59.5N 18.5E	57.0N 17.4E	80	LO	100	N	N	890809	10:02:21	161	161	44	15
75	60	USSR-EUROPEAN	CLOUDS, AGRICULTURE		51.7N 57.4E	80		100	N	N	890809	10:04:31	163	223	48	15
75	61	USSR-MIDDLE	CHU RIVER	45.0N 69.5E	45.7N 70.2E	5	NV	100	N	Y	890809	10:11:12	163	243	44	15
75	62	USSR-MIDDLE	CHU RIVER	45.0N 71.5E	45.4N 70.7E	5	NV	100	N	Y	890809	10:11:20	163	244	44	15
75	63	USSR-MIDDLE	CHU RIVER	45.0N 72.0E	45.1N 71.2E	5	NV	100	N	Y	890809	10:11:27	163	245	44	15
75	64	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.0E	44.7N 71.9E	20	LO	100	N	N	890809	10:11:37	163	246	44	15
75	65	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	44.4N 72.3E	30	LO	100	N	N	890809	10:11:44	163	247	43	15
75	66	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	43.3N 73.9E	40	LO	100	N	N	890809	10:12:08	163	249	43	15
75	67	USSR-MIDDLE	AGRICULTURE	43.0N 73.5E	42.0N 74.4E	30	NV	100	N	Y	890809	10:12:17	163	250	42	15
75	68	USSR-MIDDLE	AGRICULTURE	43.0N 73.5E	42.6N 74.9E	50	NV	100	N	Y	890809	10:12:24	163	251	42	15

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
75	69	USSR-MIDDLE	TIAN MOUNTAINS	41.5N 75.5E	41.7N 76.1E	60 NV	100 H N 890809	10:12:44	163 253 42 15
75	70	USSR-MIDDLE	TIAN MOUNTAINS	41.5N 76.5E	41.4N 76.1E	78 NV	100 H Y 890809	10:12:52	164 253 41 15
75	71	USSR-MIDDLE	LAKE ISSY-KUL, TIAN MTS.	42.0N 77.5E	41.1N 76.5E	80 NV	100 N Y 890809	10:12:58	164 254 41 15
75	72	CHINA	TAKUMAKAN DESERT	48.6N 77.0E	48.2N 78.0E	40 NV	100 H Y 890809	10:13:17	164 254 40 15
75	73	CHINA	TAKUMAKAN DESERT	48.0N 77.5E	48.1N 78.2E	20 NV	100 H Y 890809	10:13:19	164 254 40 15
75	74	CHINA	TAKUMAKAN DESERT	48.0N 78.0E	48.0N 78.3E	20 NV	100 N Y 890809	10:13:22	164 254 40 15
75	75	CHINA	TAKUMAKAN DESERT	48.0N 78.5E	48.0N 78.6E	20 NV	100 H Y 890809	10:13:26	164 254 40 15
75	76	CHINA	TAKUMAKAN DESERT	48.5N 79.5E	49.3N 79.2E	20 NV	100 H Y 890809	10:13:37	164 257 40 15
75	77	CHINA	TAKUMAKAN DESERT	48.5N 78.0E	49.2N 79.3E	20 NV	100 H Y 890809	10:13:39	164 257 40 15
75	78	CHINA	TAKUMAKAN DESERT	48.0N 78.0E	49.0N 79.5E	20 NV	100 H Y 890809	10:13:42	164 258 40 15
75	79	CHINA	TAKUMAKAN DESERT	48.0N 78.5E	48.9N 79.6E	20 NV	100 N Y 890809	10:13:45	164 258 40 15
75	80	CHINA	TAKUMAKAN DESERT	48.0N 78.0E	48.8N 79.7E	30 NV	100 H Y 890809	10:13:47	164 258 39 15
75	81	CHINA	TAKUMAKAN DESERT	37.5N 80.0E	37.9N 80.7E	60 NV	100 H Y 890809	10:14:05	164 260 39 15
75	82	CHINA	TAKUMAKAN DESERT	37.0N 81.0E	37.3N 81.4E	70 NV	100 N Y 890809	10:14:19	164 261 38 15
75	83	CHINA	TAKUMAKAN DESERT	37.0N 84.0E	36.4N 82.3E	20 NV	100 N Y 890809	10:14:36	164 262 38 15
75	84	CHINA	TIBET	35.0N 83.0E	34.6N 84.2E	60 NV	100 N N 890809	10:15:13	164 265 36 15
75	85	CHINA	TIBET	33.5N 81.0E	34.0N 84.1E	80 LO	100 N N 890809	10:15:26	164 266 35 15
75	86	CHINA	TIBET	33.5N 84.5E	33.3N 85.4E	60 NV	100 N N 890809	10:15:39	164 266 35 15
75	87	CHINA	TIBET	30.0N 83.5E	32.1N 86.5E	80 LO	100 H N 890809	10:16:02	164 268 34 15
75	88	CHINA	TIBET	31.5N 87.5E	30.5N 88.1E	80 NV	100 N N 890809	10:16:37	164 270 33 15
75	89	INDIA	BRAHMAPUTRA RIVER	26.0N 90.0E	26.7N 91.0E	90 NV	100 N N 890809	10:17:46	165 274 30 15
75	90	BANGLADESH	GANGES RIVER	24.5N 91.0E	25.8N 91.7E	70 NV	100 N Y 890809	10:18:04	165 274 29 15
75	91	BANGLADESH	GANGES RIVER	24.0N 90.5E	25.6N 91.9E	80 NV	100 H Y 890809	10:18:08	165 275 29 15
75	92	BANGLADESH	GANGES RIVER	23.5N 90.0E	25.4N 92.0E	40 LO	100 N N 890809	10:18:12	165 275 29 15
75	93	BANGLADESH	GANGES RIVER	25.6N 91.5E	24.9N 92.4E	80 NV	100 N Y 890809	10:18:20	165 275 28 15
75	94	BANGLADESH	GANGES RIVER	25.0N 92.0E	24.8N 92.5E	80 NV	100 H Y 890809	10:18:23	165 275 28 15
75	95	BURMA	CHINDWIN RIVER	21.5N 94.5E	22.4N 94.2E	80 NV	100 H N 890809	10:19:08	165 277 26 15
75	96	CLOUDS	CLOUDS		7.5N 79.3W		100 U N 890809	11:13:24	161 76 0 16
75	97	CLOUDS	CLOUDS		9.0N 78.4W		100 U N 890809	11:13:50	161 76 1 16
75	98	HAITI	UNDEREXPOSED	18.5N 72.0W	17.1N 73.4W	50 LO	100 U N 890809	11:16:17	161 76 8 16
75	99	HAITI	UNDEREXPOSED	19.5N 72.0W	18.1N 72.8W	50 LO	100 U N 890809	11:16:35	161 76 9 16
75	100	DOMINICAN REPUBLIC	UNDEREXPOSED	20.0N 71.5W	19.4N 71.9W	30 LO	100 U N 890809	11:16:50	161 77 11 16
75	101	DOMINICAN REPUBLIC	NORTHERN COASTLINE	20.0N 71.5W	19.8N 71.7W	30 NV	100 H N 890809	11:17:06	161 77 11 16
75	102	TURKS AND CAICOS IS.	PARTIAL FRAME	22.0N 71.5W		50 LO	100 N N		
76	1	CANADA	CLOUDS		52.9N 99.1W	90 HO	250 N N 890808	20:33:01	162 221 47 6
76	2	CANADA-N	XIDING MOUNTAIN	50.5N 100.0W	52.2N 97.2W	5 LO	250 H N 890808	20:33:22	163 224 47 6
76	3	CANADA-N	NORTH DAKOTA BORDER	49.0N 100.0W	52.0N 96.4W	0 LO	250 N N 890808	20:33:31	163 226 47 6
76	4	CANADA-O	LAKE HURON, LAKE ERIE	43.0N 82.0W	46.9N 84.6W	40 LO	250 N N 890808	20:35:52	163 243 43 6
76	5	CANADA-O	LAKE HURON, LAKE ERIE	42.5N 82.5W	46.7N 84.6W	40 LO	250 H N 890808	20:35:57	163 244 43 6
76	6	USA-ME	DETROIT, LAKE ERIE	42.5N 83.5W	46.4N 84.2W	60 LO	250 H N 890808	20:36:03	163 245 43 6
76	7	CANADA-O	LAKE ST. CLAIR	42.5N 82.5W	43.4N 79.3W	30 LO	250 H N 890808	20:37:15	163 252 41 6
76	8	CANADA-O	DETROIT, LAKE ERIE	42.0N 83.0W	43.2N 79.1W	30 LO	250 H N 890808	20:37:19	163 252 41 6
76	9	USA-OH	TOLEDO, LAKE ERIE	41.5N 83.0W	43.1N 78.9W	10 LO	250 H N 890808	20:37:22	163 253 40 6
76	10	USA-OH	CLEVELAND, LAKE ERIE	41.5N 82.0W	42.6N 78.2W	40 LO	250 H N 890808	20:37:32	163 254 40 6
76	11	USA-MA	CAPE COD, NANTUCKET IS.	41.5N 70.0W	37.3N 72.3W	30 LO	250 N N 890808	20:38:16	164 262 36 6
76	12	ATLANTIC OCEAN	CLOUDS		35.7N 70.0W	90	250 H N 890808	20:38:59	164 265 35 6
76	13	ATLANTIC OCEAN	CLOUDS		33.0N 69.4W	70 HO	250 H N 890808	20:40:12	164 266 34 6
76	14	ATLANTIC OCEAN	CLOUDS		33.5N 67.9W	70 HO	250 H N 890808	20:42:42	164 268 33 6
76	15	PACIFIC OCEAN	CLOUDS		21.9N 134.7E	90 HO	250 H N 890808	21:42:54	162 79 16 7
76	16	PACIFIC OCEAN	CLOUDS		22.6N 137.2E	80 HO	250 H N 890808	21:43:07	162 79 16 7
76	17	PACIFIC OCEAN	CLOUDS		25.0N 138.9E	90 LO	250 H N 890808	21:43:51	162 81 19 7
76	18	PACIFIC OCEAN	CLOUDS		36.8N 149.3E	80 HO	250 H N 890808	21:47:41	161 91 29 7
76	19	PACIFIC OCEAN	CLOUDS		37.3N 149.9E	40 HO	250 H N 890808	21:47:52	161 92 30 7
76	20	JAPAN	HOKKAIDO	43.0N 144.0E	39.3N 152.0E	50 HO	250 H N 890808	21:48:32	161 95 31 7
76	21	PACIFIC OCEAN	CLOUDS		40.6N 153.7E	80 HO	250 H N 890808	21:49:01	161 97 33 7
76	22	USA-AK	ALEUTIAN ISLANDS, CLOUDS		53.8N 179.2W	90	250 H N 890808	21:54:53	161 134 45 7
76	23	USA-AK	ALEUTIAN ISLANDS, CLOUDS		56.3N 166.7W	90 LO	250 H N 890808	21:56:51	161 153 47 7
76	24	USA-AK	ALEUTIAN ISLANDS, CLOUDS		56.6N 164.2W	80	250 H N 890808	21:57:13	162 156 48 7
76	25		MOON		56.9N 164.1W	P 7	250 H N 890808	21:57:49	162 163 48 7
76	26		MOON		57.0N 158.7W	L 3	250 H N 890808	21:58:01	162 165 48 7
76	27		MOON		57.1N 156.3W	HO	250 H N 890808	21:58:21	162 168 49 7
76	28	USA-AK	COPPER RIVER	60.5N 145.0W	57.1N 154.0W	60 LO	250 H N 890808	21:58:41	162 172 49 7
76	29	USA-AK	COPPER RIVER	60.5N 145.0W	57.1N 153.1W	60 LO	250 H N 890808	21:58:49	162 173 49 7
76	30	USA-AK	BERING GLACIER	60.0N 143.5W	57.1N 151.3W	40 LO	250 H N 890808	21:59:04	162 176 49 7
76	31	USA-AK	MALASPINA GLACIER	60.0N 140.5W	57.1N 150.1W	60 LO	250 H N 890808	21:59:14	162 177 49 7
76	32	USA-AK	MALASPINA GLACIER	60.0N 140.3W	57.1N 149.1W	60 LO	250 H N 890808	21:59:23	162 178 49 7
76	33	USA-AK	MALASPINA GLACIER	60.0N 140.5W	57.1N 147.9W	60 LO	250 H N 890808	21:59:33	162 181 49 7
76	34	USA-AK	BERING GLACIER	60.0N 143.0W	57.0N 146.5W	30 LO	250 H N 890808	21:59:45	162 183 49 7
76	35	CANADA-BC	COAST MOUNTAINS	54.0N 128.0W	54.8N 129.7W	20 NV	250 H Y 890808	22:02:16	162 209 48 7
76	36	CANADA-BC	COAST MOUNTAINS	54.0N 127.5W	54.7N 129.3W	20 NV	250 H Y 890808	22:02:20	162 209 48 7

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
76	37	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	54.6N 128.7W	10 NV	250 N Y	890808	22-02-26	162 210 48 7
76	38	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	54.5N 128.2W	5 NV	250 N Y	890808	22-02-26	162 211 48 7
76	39	CANADA-BC	COAST MOUNTAINS	53.6N 127.6W	54.6N 127.7W	10 NV	250 N Y	890808	22-02-26	162 212 48 7
76	40	CANADA-BC	COAST MOUNTAINS	52.5N 127.0W	54.2N 127.0W	10 NV	250 N Y	890808	22-02-26	162 213 48 7
76	41	CANADA-BC	COAST MOUNTAINS	52.5N 127.5W	54.0N 126.1W	20 NV	250 N Y	890808	22-02-26	162 214 48 7
76	42	CANADA-BC	ROCKY MOUNTAINS	52.5N 119.0W	51.6N 118.5W	30 NV	250 N Y	890808	22-04-13	163 227 47 7
76	43	CANADA-BC	ROCKY MOUNTAINS	52.6N 118.5W	51.6N 118.3W	30 NV	250 N Y	890808	22-04-13	163 227 47 7
76	44	CANADA-BC	ROCKY MOUNTAINS	52.6N 118.6W	51.5N 118.0W	30 NV	250 N Y	890808	22-04-18	163 227 47 7
76	45	CANADA-BC	ROCKY MOUNTAINS	51.5N 117.5W	51.4N 117.7W	40 NV	250 N Y	890808	22-04-21	163 228 47 7
76	46	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	50.9N 116.6W	30 NV	250 N Y	890808	22-04-24	163 229 46 7
76	47	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	50.8N 116.4W	50 NV	250 N Y	890808	22-04-27	163 230 46 7
76	48	CANADA-BC	ROCKY MOUNTAINS	50.8N 115.0W	50.7N 116.1W	60 NV	250 N Y	890808	22-04-30	163 230 46 7
76	49	USA-MT	ROCKY MOUNTAINS	48.5N 114.5W	50.3N 115.1W	40 LO	250 N H	890808	22-04-32	163 232 46 7
76	50	USA-MT	ROCKY MOUNTAINS	48.6N 114.5W	50.2N 114.7W	30 LO	250 N H	890808	22-04-37	163 232 46 7
76	51	USA-MT	ROCKY MOUNTAINS	48.6N 114.0W	49.8N 113.7W	30 LO	250 N H	890808	22-05-06	163 234 45 7
76	52	USA-MT	AGRICULTURE	48.5N 113.0W	49.4N 112.8W	10 NV	250 N H	890808	22-05-19	163 235 45 7
76	53	USA-MT	MISSOURI RIVER	48.6N 108.5W	49.3N 110.7W	5 LO	250 N H	890808	22-05-27	163 239 44 7
76	54	USA-MT	MISSOURI RIVER	48.6N 109.6W	48.2N 110.4W	10 LO	250 N H	890808	22-05-31	163 239 44 7
76	55	USA-MT	HELENA, MISSOURI RIVER	47.8N 112.0W	47.7N 109.5W	80 LO	250 N H	890808	22-06-03	163 241 44 7
76	56	USA-SD	MISSOURI RIVER LAKE OAKE	44.5N 100.5W	44.8N 104.4W	5 LO	250 N H	890808	22-07-14	163 248 42 7
76	57	USA-SD	MISSOURI R. LAKE SHARPE	44.0N 100.0W	44.4N 103.9W	5 LO	250 N H	890808	22-07-22	163 249 42 7
76	58	USA-SD	MISSOURI R. LAKE SHARPE	43.5N 99.5W	43.9N 103.1W	0 LO	250 N H	890808	22-07-24	163 250 41 7
76	59	USA-SD	MISSOURI RIVER	43.6N 99.6W	43.5N 102.5W	5 LO	250 N H	890808	22-07-34	163 251 41 7
76	60	USA-NE	PLATTE RIVER, GRAND IS.	40.5N 98.0W	41.6N 99.8W	0 LO	250 N H	890808	22-08-27	163 255 40 7
76	61	USA-OK	AGRICULTURE	36.5N 96.8W	39.9N 97.7W	5 LO	250 N H	890808	22-09-04	164 259 38 7
76	62	USA-OK	EUFALA RESERVOIR	35.6N 95.5W	38.2N 95.8W	20 LO	250 N H	890808	22-09-30	164 261 37 7
76	63	USA-MS	MISSISSIPPI RIVER	32.5N 90.5W	35.9N 93.3W	20 LO	250 N H	890808	22-10-26	164 265 35 7
76	64	USA-MS	JACKSON	32.6N 90.6W	34.3N 91.6W	5 LO	250 N H	890808	22-10-29	164 267 34 7
76	65	USA-AL	MOBILE	30.5N 88.0W	31.6N 89.2W	50 LO	250 N H	890808	22-11-51	164 270 32 7
76	66	USA-FL	TAMPA BAY	27.5N 82.5W	27.4N 85.7W	30 LO	250 N H	890808	22-12-12	164 274 28 7
76	67	CUBA	ENSENADA DE CORTES	22.5N 83.5W	24.9N 83.7W	40 LO	250 N H	890808	22-14-00	165 276 26 7
76	68	CUBA	PENINSULA DE ZAPATA	22.5N 82.8W	24.2N 83.2W	30 LO	250 N H	890808	22-14-14	165 277 25 7
76	69	CUBA	BANCA DE CARDENAS	23.0N 81.5W	23.4N 82.6W	30 LO	250 N H	890808	22-14-28	165 278 25 7
76	70	CUBA	CIENFUEGOS, LOMA SAN JUAN	22.0N 80.5W	22.9N 82.3W	20 LO	250 N H	890808	22-14-38	165 278 24 7
76	71	CUBA	GOLFO DE GUACANAYASO	20.5N 77.5W	21.4N 81.2W	40 LO	250 N H	890808	22-15-05	165 279 23 7
76	72	JAMAICA	EASTERN END, KINGSTON	18.0N 76.5W	18.1N 79.0W	20 LO	250 N H	890808	22-16-07	165 281 20 7
76	73	CHINA	CHANGAI MOUNTAINS	42.6N 128.0E	40.2N 130.1E	50 LO	250 N H	890808	22-19-23	161 96 32 8
76	74	CANARY ISLANDS	TEHERIFE	28.5N 16.5W	29.2N 18.7W	30 LO	250 N H	890808	08-12-53	161 83 20 14
76	75	USSR-EUROPEAN	MOSCOW	56.8N 38.5E	56.8N 37.5E	70 NV	250 N H	890808	08-31-18	161 157 47 14
76	76	USSR-EUROPEAN	MOSCOW, RAMEVSKOYE ARPT.	56.6N 38.6E	56.9N 38.3E	70 NV	250 N H	890808	08-31-25	161 158 48 14
76	77	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.5N 43.5E	57.1N 42.1E	60 NV	250 N Y	890808	08-31-58	161 164 48 14
76	78	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.5N 43.5E	57.1N 43.2E	60 NV	250 N Y	890808	08-32-07	161 165 48 14
76	79	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 50.0E	57.1N 48.4E	60 NV	250 N Y	890808	08-32-52	162 173 49 14
76	80	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 50.5E	57.1N 48.7E	60 NV	250 N Y	890808	08-32-54	162 173 49 14
76	81	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 51.5E	57.1N 49.1E	80 NV	250 N Y	890808	08-32-58	162 174 49 14
76	82	USSR-MIDDLE	CLOUDS, AGRICULTURE	52.5N 75.0E	53.6N 74.4E	70 NV	250 N Y	890808	08-34-48	162 213 49 14
76	83	USSR-MIDDLE	CLOUDS, AGRICULTURE	52.5N 75.0E	53.1N 75.1E	70 NV	250 N Y	890808	08-34-56	162 215 48 14
76	84	USSR-MIDDLE	LAKE KULUNDOSKOYE	53.0N 78.5E	52.6N 77.9E	5 NV	250 N Y	890808	08-37-25	162 219 48 14
76	85	USSR-MIDDLE	LAKE KULUNDOSKOYE	53.0N 78.5E	52.3N 78.6E	5 NV	250 N Y	890808	08-37-33	162 220 48 14
76	86	USSR-MIDDLE	UST-KAMENOGORSKOYE RES.	49.5N 83.5E	50.8N 82.1E	40 NV	250 N H	890808	08-38-20	163 227 47 14
76	87	CHINA	YANGTZE RIVER, CLOUDS	31.0N 110.0E	31.2N 110.3E	80 NV	250 N Y	890808	08-45-42	164 269 33 14
76	88	CHINA	YANGTZE RIVER, CLOUDS	31.0N 110.0E	31.0N 110.5E	80 NV	250 N Y	890808	08-45-45	164 269 33 14
76	89	CHINA	DONG TING LAKE	29.0N 112.5E	28.2N 112.8E	20 NV	250 N H	890808	08-46-39	164 272 31 14
76	90	CHINA	TUNG RIVER	24.2N 114.5E	25.8N 114.7E	40 NV	250 N H	890808	08-47-25	165 275 29 14
76	91	CHINA	SHANTOU	23.5N 117.0E	24.3N 115.8E	10 NV	250 N Y	890808	08-47-53	165 276 28 14
76	92	CHINA	SHANTOU	23.5N 116.5E	24.1N 116.0E	5 NV	250 N Y	890808	08-47-57	165 276 27 14
76	93	CHINA	SHANTOU	23.6N 116.5E	23.9N 116.1E	5 NV	250 N Y	890808	08-48-01	165 276 27 14
76	94	CHINA	CHEN-SHUI BAY	22.5N 115.5E	23.2N 116.6E	30 NV	250 N H	890808	08-48-14	165 277 27 14
76	95	CHINA	COASTLINE	22.0N 113.0E	21.2N 118.1E	80 LO	250 N H	890808	08-48-52	165 278 25 14
76	96	CHINA	COASTLINE	22.0N 113.0E	20.7N 118.3E	80 LO	250 N H	890808	08-49-00	165 279 25 14
76	97	ATLANTIC OCEAN	CLOUDS		52.4N 8.3W	90 LO	250 N H	890808	09-52-12	161 124 42 15
76	98	ATLANTIC OCEAN	CLOUDS		53.4N 4.8W	80 LO	250 N H	890808	09-52-49	161 129 43 15
76	99	ATLANTIC OCEAN	CLOUDS		53.6N 4.8W	80 LO	250 N H	890808	09-52-57	161 130 43 15
76	100	BRITAIN	CLOUDS		54.5N 0.5W	90 LO	250 N H	890808	09-59-32	161 135 44 15
76	101	NORTH SEA	CLOUDS		55.7N 5.6E	70 LO	250 N H	890808	10-00-30	161 143 44 15
76	102	NORWAY	SOUTHWESTERN COASTLINE	58.5N 6.0E	56.2N 9.0E	60 LO	250 N H	890808	10-01-01	161 148 44 15
76	103	NORWAY	SOUTHWESTERN COASTLINE	58.5N 7.0E	56.3N 9.8E	60 LO	250 N H	890808	10-01-06	161 149 47 15
76	104	NORWAY	SOUTHEASTERN COASTLINE	58.5N 7.5E	56.4N 10.7E	60 LO	250 N H	890808	10-01-16	161 151 47 15
76	105	NORWAY	SOUTHEASTERN COASTLINE	58.5N 8.5E	56.7N 13.0E	70 LO	250 N H	890808	10-01-34	161 154 47 15
76	106	NORWAY	SOUTHERN TIP	58.0N 7.0E	57.0N 17.3E	70 LO	250 N H	890808	10-02-13	161 160 44 15

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
77	1	USSR-EUROPEAN	AGRICULTURE, CLOUDS		53.0N 53.5E	70 LO	250 N N 890809	18:07:41	162 216 48 15
77	2	USSR-EUROPEAN	AGRICULTURE, CLOUDS		52.2N 56.0E	80 LO	250 N N 890809	18:08:08	162 220 48 15
77	3	USSR-EUROPEAN	AGRICULTURE, CLOUDS		51.6N 57.4E	80 LO	250 N N 890809	18:08:28	163 223 48 15
77	4	USSR-MIDDLE	AGRICULTURE, CLOUDS		50.1N 61.4E	70	250 N N 890809	18:09:12	163 229 47 15
77	5	USSR-MIDDLE	AGRICULTURE, CLOUDS		49.7N 62.4E	70 LO	250 N N 890809	18:09:22	163 231 47 15
77	6	USSR-MIDDLE	AGRICULTURE, TERSAKKAN R.	50.5N 67.5E	48.1N 65.0E	50 LO	250 N N 890809	18:10:07	163 234 46 15
77	7	USSR-MIDDLE	AGRICULTURE, TERSAKKAN R.	50.0N 67.0E	47.0N 64.3E	10 LO	250 N N 890809	18:10:12	163 237 46 15
77	8	USSR-MIDDLE	LAKE TENGIZ	50.5N 69.0E	47.5N 67.1E	60 LO	250 N N 890809	18:10:22	163 238 45 15
77	9	USSR-MIDDLE	LAKE TENGIZ	50.0N 69.5E	47.3N 67.4E	50 LO	250 N N 890809	18:10:27	163 239 45 15
77	10	USSR-MIDDLE	KAZAKHSTAN		46.4N 69.1E	30	250 N N 890809	18:10:50	163 241 45 15
77	11	USSR-MIDDLE	KAZAKHSTAN		45.6N 70.4E	5	250 N N 890809	18:11:00	163 244 44 15
77	12	USSR-MIDDLE	LAKE BALKHASH	46.5N 74.0E	44.6N 71.9E	20 LO	250 N N 890809	18:11:31	163 246 44 15
77	13	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	44.2N 72.6E	10 NV	250 N N 890809	18:11:41	163 247 43 15
77	14	USSR-MIDDLE	LAKE BALKHASH	45.0N 74.0E	43.2N 74.1E	40 NV	250 N N 890809	18:12:04	163 249 43 15
77	15	USSR-MIDDLE	LAKE BALKHASH	44.5N 76.5E	42.6N 74.9E	60 LO	250 N N 890809	18:12:18	163 251 42 15
77	16	USSR-MIDDLE	LAKE BALKHASH	46.5N 79.0E	41.8N 76.0E	40 LO	250 N N 890809	18:12:35	163 252 42 15
77	17	USSR-MIDDLE	LAKE ISSYK KUL	42.5N 78.0E	41.3N 76.7E	50 NV	250 N N 890809	18:12:47	164 251 41 15
77	18	CHINA	CLOUDS, MOUNTAINS		40.0N 78.3E	70	250 N N 890809	18:13:14	164 256 40 15
77	19	CHINA	WENSU, TOJKAN RIVER	41.0N 80.0E	39.4N 79.1E	5 NV	250 N Y 890809	18:13:28	164 257 40 15
77	20	CHINA	AKSU RIVER, AGRICULTURE	40.5N 80.0E	39.1N 77.3E	10 NV	250 N Y 890809	18:13:33	164 258 40 15
77	21	CHINA	TIAN MOUNTAINS	40.5N 78.5E	38.3N 80.3E	60 LO	250 N N 890809	18:13:51	164 259 39 15
77	22	CHINA	TIAN MOUNTAINS	40.5N 78.5E	37.7N 80.9E	30 LO	250 N N 890809	18:14:02	164 260 39 15
77	23	CHINA	TAKLIMAKAN DESERT	40.0N 79.0E	37.2N 81.5E	20 LO	250 N N 890809	18:14:13	164 261 38 15
77	24	CHINA	TIBET	37.0N 81.0E	33.9N 84.1E	40 LO	250 N N 890809	18:15:20	164 266 34 15
77	25	CHINA	ALTUN MOUNTAINS	36.0N 84.5E	33.1N 85.6E	40 LO	250 N N 890809	18:15:34	164 267 35 15
77	26	CHINA	ALTUN MOUNTAINS	36.5N 87.5E	32.8N 85.9E	50 LO	250 N N 890809	18:15:42	164 267 35 15
77	27	CHINA	ALTUN MOUNTAINS	36.5N 87.5E	32.5N 84.2E	50 LO	250 N N 890809	18:15:48	164 267 35 15
77	28	CHINA	ALTUN MOUNTAINS	37.5N 89.4E	31.7N 85.9E	40 LO	250 N N 890809	18:16:03	164 268 34 15
77	29	CHINA	ALTUN MOUNTAINS	37.5N 89.5E	31.2N 87.4E	60 LO	250 N N 890809	18:16:14	164 269 34 15
77	30	CHINA	ALTUN MOUNTAINS	38.0N 90.5E	30.6N 87.9E	70 NO	250 N N 890809	18:16:25	164 270 33 15
77	31	CHINA	TIBET, CLOUDS	32.0N 88.0E	28.7N 89.4E	90 LO	250 N N 890809	18:17:01	164 272 32 15
77	32	CHINA	TIBET, CLOUDS		27.6N 90.3E	90 LO	250 N N 890809	18:17:22	165 273 31 15
77	33	INDIA	BRAHMAPUTRA RIVER	27.0N 94.5E	23.6N 93.3E	50 LO	250 N N 890809	18:18:38	165 276 27 15
77	34	INDIA	BRAHMAPUTRA RIVER	26.5N 93.5E	21.5N 94.0E	80 LO	250 N N 890809	18:19:18	165 278 25 15
77	35	ASIA	CLOUDS		19.9N 95.9E	90	250 N N 890809	18:19:47	165 279 24 15
77	36	ASIA	CLOUDS		19.5N 96.2E	90	250 N N 890809	18:19:54	165 279 24 15
77	37	ASIA	CLOUDS		18.4N 96.9E	90	250 N N 890809	18:20:14	165 280 23 15
77	38	ASIA	CLOUDS		13.5N 100.5E	100 HO	250 N N 890809	18:21:43	165 282 19 15
77	39	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	12.4N 100.7E	30 NV	250 N Y 890809	18:22:03	165 283 18 15
77	40	THAILAND	BWHT OF BANGKOK	13.0N 101.0E	12.1N 100.9E	30 NV	250 N Y 890809	18:22:09	165 283 17 15
77	41	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	11.9N 101.0E	30 NV	250 N Y 890809	18:22:12	165 283 17 15
77	42	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	10.4N 101.9E	80 LO	250 N N 890809	18:22:29	165 284 16 15
77	43	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	10.0N 102.1E	90 LO	250 N N 890809	18:22:47	165 284 16 15
77	44	SOUTH CHINA SEA	CLOUDS		3.6N 105.8E	100 HO	250 N N 890809	18:24:11	166 285 10 15
77	45	SOUTH CHINA SEA	CLOUDS		2.8N 106.3E	100 HO	250 N N 890809	18:24:54	166 286 9 15
77	46	SOUTH CHINA SEA	CLOUDS		2.2N 106.7E	100 HO	250 N N 890809	18:25:07	166 286 9 15
77	47	SOUTH CHINA SEA	CLOUDS		1.6N 107.4E	100 HO	250 N N 890809	18:25:29	166 286 8 15
77	48	HAITI	NORTHERN COASTLINE	19.5N 72.0W	19.8N 71.4W	10 NV	250 U N 890809	11:17:00	161 77 11 16
77	49	DOMINICAN REPUBLIC	NORTHERN COASTLINE	20.0N 71.5W	20.0N 71.5W	5 NV	250 U N 890809	11:17:04	161 77 11 16
77	50	TURKS AND CAICOS IS.	CAICOS ISLANDS	22.0N 72.0W	23.8N 71.0W	40 LO	250 U N 890809	11:17:18	161 77 12 16
77	51	ATLANTIC OCEAN	CLOUDS		43.5N 49.3W	60 LO	250 N N 890809	11:24:49	161 99 33 16
77	52	ATLANTIC OCEAN	OCEAN FEATURES		44.2N 48.2W	40 LO	250 N N 890809	11:25:07	161 101 34 16
77	53	FRANCE	ENGLISH CHANNEL	47.5N 1.0W	57.1N 0.5W	60 HO	250 N N 890809	11:33:29	162 168 48 16
77	54	FRANCE	ENGLISH CHANNEL	49.5N 0.5E	57.1N 1.1E	60 HO	250 N N 890809	11:33:43	162 170 48 16
77	55	NORTH SEA	CLOUDS		57.1N 4.5E	40	250 N N 890809	11:34:12	162 175 43 16
77	56	NETHERLANDS	USSELMEER	53.0N 5.0E	57.0N 6.5E	70 LO	250 N N 890809	11:34:29	162 178 49 16
77	57	NETHERLANDS	USSELMEER	53.5N 5.5E	57.0N 7.2E	50 LO	250 N N 890809	11:34:35	162 179 49 16
77	58	NETHERLANDS	FED REP OF GERMANY	53.5N 7.0E	54.9N 8.1E	80 LO	250 N N 890809	11:34:43	162 181 49 16
77	59	NETHERLANDS	USSELMEER	53.0N 5.5E	54.9N 8.7E	80 LO	250 N N 890809	11:34:48	162 182 49 16
77	60	USSR-EUROPEAN	CASPIAN SEA-EAST COAST	43.5N 51.5E	46.8N 45.4E	30 LO	250 N N 890809	11:41:11	163 240 45 16
77	61	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.0N 53.0E	45.8N 47.1E	30 LO	250 N N 890809	11:41:36	163 243 45 16
77	62	USSR-EUROPEAN	BARSAXEL MES SALT FLAT	43.0N 58.0E	42.0N 52.7E	10 LO	250 N N 890809	11:43:02	163 252 42 16
77	63	USSR-EUROPEAN	BARSAXEL MES SALT FLAT	43.0N 58.0E	41.3N 53.4E	10 LO	250 N N 890809	11:43:17	164 253 42 16
77	64	USSR-EUROPEAN	BARSAXEL MES SALT FLAT	43.5N 58.0E	40.9N 54.2E	30 LO	250 N N 890809	11:43:27	164 254 41 16
77	65	USSR-EUROPEAN	LAKE SARYKAMYSHSKOYE	41.5N 57.5E	40.4N 54.9E	0 LO	250 N N 890809	11:43:38	164 255 41 16
77	66	USSR-EUROPEAN	ARAL SEA, CLOUDS	43.5N 59.5E	38.6N 55.8E	70 LO	250 N N 890809	11:43:55	164 256 40 16
77	67	USSR-MIDDLE	LAKE AYDARKUL	42.0N 67.0E	37.9N 57.7E	30 HO	250 N N 890809	11:44:30	164 259 39 16
77	68	USSR-MIDDLE	MURGAB RIVER AGRICULTURE	37.5N 62.5E	36.3N 59.5E	0 LO	250 N N 890809	11:45:04	164 262 38 16
77	69	AFGHANISTAN	MOUNTAINS		34.1N 61.7E	10 LO	250 N N 890809	11:45:48	164 265 34 16
77	70	AFGHANISTAN	MOUNTAINS		33.7N 62.1E	20 LO	250 N N 890809	11:45:54	164 266 34 16



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
77	71	AFGHANSTAN	MOUNTAINS		33.2N 62.5E	20 LO	250 N H	890809	11:45:05	164 266 35 16
77	72	PAKISTAN	INDUS RIVER	28.5N 69.5E	30.3N 65.2E	0 LO	250 N H	890809	11:47:03	164 270 33 16
77	73	PAKISTAN	CLOUDS		29.2N 66.0E	70 NV	250 N Y	890809	11:47:23	164 271 32 16
77	74	PAKISTAN	CLOUDS		28.9N 66.3E	70 NV	250 N H	890809	11:47:20	164 271 32 16
77	75	PAKISTAN	CLOUDS		28.6N 66.5E	80 NV	250 N Y	890809	11:47:35	165 272 32 16
77	76	PAKISTAN	CLOUDS		28.3N 66.7E	90 NV	250 N Y	890809	11:47:40	165 272 32 16
77	77	PAKISTAN	INDUS RIVER		27.0N 67.8E	0	250 N H	890809	11:48:06	165 273 30 16
77	78	ASIA	CLOUDS		22.0N 71.5E	90 HO	250 N H	890809	11:49:30	165 277 26 16
77	79	INDIA	COASTLINE	18.5N 73.0E	18.6N 73.8E	70 NV	250 N H	890809	11:50:43	165 280 23 16
77	80	INDIA	PENNER RIVER	14.0N 79.0E	14.8N 76.3E	50 LO	250 N H	890809	11:51:52	165 282 20 16
77	81	INDIA	PULICAT LAKE	13.5N 79.5E	14.5N 76.4E	50 LO	250 H H	890809	11:51:57	165 282 20 16
77	82	INDIA	PULICAT LAKE	13.5N 80.0E	14.3N 76.5E	30 LO	250 N H	890809	11:52:00	165 282 20 16
77	83	INDIA	EASTERN GHATS	12.0N 79.0E	13.3N 77.1E	60 LO	250 H H	890809	11:52:18	165 282 19 16
77	84	INDIA	EASTERN GHATS	12.0N 78.5E	12.9N 77.4E	70 NV	250 N H	890809	11:52:26	165 283 18 16
77	85	SRI LANKA	SOUTHEASTERN COASTLINE	6.5N 82.0E	9.0N 79.7E	70 LO	250 H H	890809	11:53:36	166 284 15 16
77	86	SRI LANKA	SOUTHEASTERN COASTLINE	6.5N 81.5E	8.3N 80.2E	50 LO	250 H H	890809	11:53:49	166 284 14 16
77	87	BAY OF BENGAL	CLOUDS		5.2N 81.9E	70	250 H H	890809	11:54:44	166 285 12 16
77	88		BLANK		21.5S 119.7W			890809	12:35:06	162 82-26 16
77	89		BLANK		20.6S 119.0W			890809	12:35:23	162 82-25 16
77	90	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		18.1S 117.4W	HO	250 N H	890809	12:36:00	162 80-23 16
77	91	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		14.7S 115.2W	HO	250 N H	890809	12:37:10	162 78-20 16
77	92	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		13.7S 114.6W	HO	250 H H	890809	12:37:24	162 78-19 16
77	93	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		12.5S 113.8W	HO	250 N H	890809	12:37:51	162 77-18 16
77	94	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		12.1S 113.6W	HO	250 N H	890809	12:37:58	162 77-18 16
77	95	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		11.3S 113.1W	HO	250 N H	890809	12:38:12	162 77-17 16
77	96	MEXICO	MOUNTAINS, CLOUDS		19.4N 94.9W	60 LO	250 H H	890809	12:47:23	161 77 10 17
77	97	MEXICO	MOUNTAINS, CLOUDS		19.7N 94.7W	60 LO	250 H H	890809	12:47:30	161 77 11 17
77	98	MEXICO	MOUNTAINS, CLOUDS		20.1N 94.4W	70 LO	250 N H	890809	12:47:37	161 77 11 17
77	99	MEXICO	MOUNTAINS, CLOUDS		20.8N 93.9W	80 LO	250 H H	890809	12:47:50	161 77 12 17
77	100	USA-AL	MOBILE	30.5N 88.0W	30.5N 86.6W	5 NV	250 N H	890809	12:50:52	161 83 20 17
77	101	USA-GA	ATLANTA	33.5N 84.5W	32.6N 84.7W	20 NV	250 H H	890809	12:51:33	161 85 22 17
78	1	USA-VA	HARRISONBURG	38.5N 79.0W	37.6N 79.7W	5 NV	250 N H	890809	12:53:06	161 90 27 17
78	2	USA-VA	WASHINGTON D.C.	38.0N 77.5W	38.7N 78.5W	0 NV	250 N H	890809	12:53:30	161 92 28 17
78	3	USA-DC	WASHINGTON D.C.	39.0N 77.0W	39.0N 78.2W	0 NV	250 N Y	890809	12:53:36	161 92 28 17
78	4	USA-DC	WASHINGTON D.C.	39.0N 77.0W	39.5N 77.5W	0 NV	250 H Y	890809	12:53:47	161 93 28 17
78	5	USA-MD	CHESAPEAKE BAY	39.5N 76.0W	40.1N 76.3W	0 NV	250 H H	890809	12:54:00	161 94 29 17
78	6	USA-NJ	PHILADELPHIA	40.0N 75.0W	40.6N 76.2W	0 NV	250 H H	890809	12:54:10	161 94 30 17
78	7	USA-NY	HUDSON RIVER	41.5N 74.0W	41.4N 75.2W	5 NV	250 H H	890809	12:54:27	161 94 31 17
78	8	USA-MA	SPRINGFIELD	42.5N 72.5W	42.6N 73.5W	0 NV	250 H H	890809	12:54:35	161 94 32 17
78	9	USA-VT	VERMONT, NEW HAMPSHIRE	43.0N 72.5W	42.9N 73.1W	5 NV	250 N Y	890809	12:55:01	161 90 32 17
78	10	USA-VT	VERMONT, NEW HAMPSHIRE	43.0N 72.5W	43.0N 73.0W	5 NV	250 N Y	890809	12:55:04	161 90 32 17
78	11	USA-VT	VERMONT, NEW HAMPSHIRE	43.5N 72.5W	43.1N 72.8W	10 NV	250 N Y	890809	12:55:06	161 90 32 17
78	12	CANADA-Q	MONTREAL	45.5N 73.5W	44.3N 71.0W	5 LO	250 N H	890809	12:55:34	161 181 33 17
78	13	CANADA-Q	GASPE PENINSULA	49.0N 64.5W	47.5N 65.7W	0 NV	250 N H	890809	12:56:50	161 100 34 17
78	14	CANADA-Q	ILE D'ANTICOSTI	50.0N 64.5W	47.6N 65.4W	20 LO	250 N H	890809	12:56:54	161 100 37 17
78	15	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.0W	48.1N 64.6W	30 NV	250 N H	890809	12:57:05	162 100 37 17
78	16	CANADA-Q	POINTE DE NATASHQUAN	50.5N 62.0W	48.4N 64.0W	20 LO	250 N H	890809	12:57:13	162 110 37 17
78	17	CANADA-Q	ILES DE MINGAY	50.5N 63.0W	48.5N 63.7W	10 LO	250 N H	890809	12:57:16	162 110 37 17
78	18	CANADA-Q	JACQUES-CARTIER PASSAGE	50.5N 64.5W	48.6N 63.4W	20 LO	250 N H	890809	12:57:20	162 111 38 17
78	19	SYRIA	EUPHRATES RIVER	34.0N 39.0E	37.3N 35.4E	0 LO	250 N H	890809	13:15:08	167 260 39 17
78	20	SYRIA	EUPHRATES RIVER	35.0N 40.5E	37.0N 35.7E	0 LO	250 N H	890809	13:15:14	167 261 39 17
78	21	EGYPT	SINAI PENINSULA	28.0N 34.5E	32.5N 40.2E	5 LO	250 N H	890809	13:16:45	168 267 35 17
78	22	EGYPT	SINAI PENINSULA	28.5N 34.5E	32.1N 40.5E	5 LO	250 N H	890809	13:16:52	168 267 35 17
78	23	SAUDI ARABIA	RED SEA	22.0N 35.5E	31.0N 40.7E	10 LO	250 N H	890809	13:16:57	169 268 35 17
78	24	SAUDI ARABIA	AN RAFUD	28.0N 41.0E	30.1N 42.3E	5 LO	250 N H	890809	13:17:32	168 270 33 17
78	25	SAUDI ARABIA	JABAL AJA	27.5N 41.5E	29.7N 42.7E	30 LO	250 N H	890809	13:17:48	168 270 33 17
78	26	SAUDI ARABIA	AL RUJAZ, RED SEA	26.0N 38.5E	29.1N 43.2E	50 LO	250 N H	890809	13:17:52	168 271 32 17
78	27	SAUDI ARABIA	IRRIGATED AGRICULTURE		28.5N 43.6E	0	250 N H	890809	13:18:03	169 272 32 17
78	28	SAUDI ARABIA	IRRIGATED AGRICULTURE		27.9N 44.1E	0	250 N H	890809	13:18:14	169 272 31 17
78	29	SAUDI ARABIA	IRRIGATED AGRICULTURE		27.1N 44.8E	30	250 H H	890809	13:18:36	169 273 31 17
78	30	SAUDI ARABIA	IRRIGATED AGRICULTURE		26.9N 44.9E	30	250 N H	890809	13:18:34	169 273 31 17
78	31		BLANK		31.7N 108.5W			890809	14:21:47	161 84-21 18
78	32	USA-CO	SANGRE DE CRISTO MTHS.	38.0N 105.5W	34.5N 106.0W	30 LO	250 N H	890809	14:22:42	161 87 24 18
78	33	USA-CO	SANGRE DE CRISTO MTHS.	37.5N 105.5W	34.6N 105.8W	10 LO	250 N H	890809	14:22:45	161 87 24 18
78	34	USA-CO	SANGRE DE CRISTO MTHS.	37.0N 105.5W	34.7N 105.7W	20 LO	250 N H	890809	14:22:47	161 87 24 18
78	35	USA-CO	RIO GRANDE, AGRICULTURE	38.0N 106.5W	35.9N 104.5W	30 LO	250 H H	890809	14:23:11	161 84 25 18
78	36	USA-NE	OMAHA, COUNCIL BLUFFS	41.5N 96.0W	41.3N 98.3W	0 LO	250 N H	890809	14:25:05	161 85 30 18
78	37	USA-MN	MINNEAPOLIS, ST. PAUL	45.0N 93.0W	44.1N 94.4W	0 NV	250 N H	890809	14:26:07	161 100 33 18
78	38	USA-WI	SUPERIOR, DULUTH, GINN.	46.5N 92.0W	45.1N 92.9W	30 NV	250 N H	890809	14:28:30	161 102 34 18
78	39	USA-MI	KEWEENAW PENINSULA	47.0N 84.5W	46.7N 90.1W	10 NV	250 N Y	890809	14:27:09	161 105 35 18

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
78	40	USA-M	KEWEENAW PENINSULA	47.0N 88.5W	47.0N 89.5W	18	NV	250	N	Y	890809	14:27:17	161	106	36	18
78	41	USA-M	LSUPERIOR, WHITEFISH BAY	46.5N 85.0W	47.3N 88.0W	50	LO	250	N	N	890809	14:27:24	161	107	36	18
78	42	CANADA-O	LSUPERIOR, WHITEFISH BAY	47.0N 85.0W	47.6N 88.5W	30	LO	250	N	N	890809	14:27:31	161	108	36	18
78	43	CANADA-O	LAKE SUPERIOR, AGAWA BAY	47.5N 84.5W	47.7N 88.2W	30	LO	250	N	N	890809	14:27:35	161	108	36	18
78	44	CANADA-O	LAKE SUPERIOR	48.0N 86.0W	48.6N 86.6W	40	NV	250	N	N	890809	14:27:54	162	110	37	18
78	45	CANADA-O	SANDBANK LAKE	51.0N 83.0W	49.4N 84.8W	20	NV	250	N	N	890809	14:28:19	162	112	38	18
78	46	CANADA-Q	LAC DU VIEUX COMPTOIR	53.0N 77.5W	51.2N 80.6W	60	LO	250	N	N	890809	14:29:09	162	118	40	18
78	47	CANADA-Q	FIRES, SMOKE	53.0N 77.0W	51.4N 79.9W	60	LO	250	N	N	890809	14:29:17	162	119	40	18
78	48	CANADA-Q	LAC DU VIEUX COMPTOIR	53.0N 77.5W	52.0N 78.4W	40	NV	250	N	N	890809	14:29:34	162	121	41	18
78	49	CANADA-Q	FIRES, SMOKE	53.0N 77.0W	52.2N 77.8W	40	NV	250	N	N	890809	14:29:41	162	122	41	18
78	50	FRANCE	LORIENT	48.0N 3.5W	49.5N 5.9W	20	LO	250	N	N	890809	14:41:05	165	230	47	18
78	51	FRANCE	LORIENT	47.5N 3.5W	49.2N 5.3W	0	LO	250	N	N	890809	14:41:13	165	231	47	18
78	52	FRANCE	GRONDE RIVER	46.0N 1.5W	48.6N 4.0W	5	LO	250	N	N	890809	14:41:29	164	233	47	18
78	53	FRANCE	BAIE DE BOURGNEUF	47.0N 2.0W	48.2N 3.2W	5	NV	250	N	N	890809	14:41:39	164	235	46	18
78	54	FRANCE	LE HAVRE	49.5N 0.8	47.6N 2.1W	5	LO	250	N	N	890809	14:41:54	164	237	46	18
78	55	FRANCE	GRONDE RIVER, SUNGLINT	45.5N 1.5W	46.5N 0.1W	0	LO	250	N	N	890809	14:42:22	164	240	45	18
78	56	FRANCE	GRONDE RIVER, SUNGLINT	45.5N 1.5W	46.1N 0.5E	0	LO	250	N	N	890809	14:42:31	164	241	45	18
78	57	FRANCE	PUY DE SANCY	45.0N 3.0E	44.9N 2.5E	30	NV	250	N	N	890809	14:42:59	164	244	44	18
78	58	FRANCE	GULF OF LION	43.5N 4.0E	44.4N 3.3E	5	NV	250	N	Y	890809	14:43:12	164	245	44	18
78	59	FRANCE	GULF OF LION	43.5N 4.0E	44.6N 3.9E	5	NV	250	N	Y	890809	14:43:29	164	246	44	18
78	60	FRANCE	RHONE RIVER	43.5N 4.5E	43.9N 4.1E	5	NV	250	N	Y	890809	14:43:24	164	247	44	18
78	61	FRANCE	RHONE RIVER	43.5N 4.5E	43.7N 4.3E	5	NV	250	N	Y	890809	14:43:27	164	247	44	18
78	62	FRANCE	RHONE RIVER	43.5N 5.0E	43.6N 4.6E	5	NV	250	N	Y	890809	14:43:31	164	247	44	18
78	63	FRANCE	RHONE RIVER	43.5N 5.0E	43.4N 4.8E	5	NV	250	N	Y	890809	14:43:35	164	248	43	18
78	64	FRANCE	MARSEILLE	43.5N 5.0E	43.3N 5.0E	0	NV	250	N	Y	890809	14:43:38	164	248	43	18
78	65	FRANCE	MARSEILLE	43.5N 5.0E	43.1N 5.2E	0	NV	250	N	Y	890809	14:43:41	164	248	43	18
78	66	FRANCE	MARSEILLE	43.0N 5.5E	43.0N 5.4E	0	NV	250	N	Y	890809	14:43:44	164	249	43	18
78	67	FRANCE	MARSEILLE TOULON	43.0N 5.5E	42.8N 5.6E	0	NV	250	N	Y	890809	14:43:48	167	249	43	18
78	68	FRANCE	TOULON	43.0N 6.0E	42.6N 5.9E	5	NV	250	N	Y	890809	14:43:52	167	250	43	18
78	69	FRANCE	SAINT-TROPEZ, HYERES	43.0N 6.5E	42.4N 6.2E	5	NV	250	N	Y	890809	14:43:57	167	250	43	18
78	70	FRANCE	SAINT-TROPEZ	43.0N 6.5E	42.1N 6.6E	5	NV	250	N	Y	890809	14:44:03	167	251	43	18
78	71	FRANCE	TOULON, HYERES	43.0N 6.5E	41.7N 7.2E	5	LO	250	N	N	890809	14:44:13	167	252	42	18
78	72	FRANCE	CORSICA, SARDINIA	41.5N 9.0E	40.2N 9.1E	5	LO	250	N	N	890809	14:44:14	167	253	41	18
78	73	ITALY	SARDINIA, CORSICA	41.0N 9.0E	39.8N 9.5E	5	LO	250	N	N	890809	14:44:53	167	253	41	18
78	74	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.0E	39.2N 10.2E	20	LO	250	N	N	890809	14:45:04	167	254	41	18
78	75	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.0E	38.8N 10.7E	20	LO	250	N	N	890809	14:45:15	167	257	40	18
78	76	ALGERIA	MEDITERRANEAN COASTLINE	37.5N 7.0E	37.0N 11.4E	5	LO	250	N	N	890809	14:45:35	167	259	46	18
78	77	ALGERIA	MEDITERRANEAN COASTLINE	37.5N 7.5E	37.5N 12.2E	5	LO	250	N	N	890809	14:45:43	167	260	38	18
78	78	ITALY	MOUNT ETNA	38.0N 15.0E	36.4N 13.3E	10	NV	250	N	Y	890809	14:46:04	167	261	38	18
78	79	ITALY	MOUNT ETNA	37.5N 15.0E	36.1N 13.7E	10	NV	250	N	Y	890809	14:46:11	168	262	38	18
78	80	ITALY	MOUNT ETNA	37.5N 15.0E	35.8N 14.8E	10	NV	250	N	Y	890809	14:46:17	168	262	38	18
78	81	MALTESE ISLANDS	MALTA, GOZO	36.0N 14.5E	34.9N 14.9E	50	NV	250	N	N	890809	14:46:34	168	264	37	18
78	82	MALTESE ISLANDS	MALTA, GOZO	36.0N 14.5E	34.5N 15.3E	40	LO	250	N	N	890809	14:46:44	168	264	37	18
78	83	LIBYA	TRIPOLI	33.0N 13.5E	33.6N 16.1E	0	LO	250	N	N	890809	14:47:01	168	265	36	18
78	84	LIBYA	MISURATA	32.5N 15.0E	33.2N 16.6E	0	NV	250	N	N	890809	14:47:10	168	266	34	18
78	85	LIBYA	GULF OF SIDRA	31.5N 16.0E	31.5N 18.0E	5	LO	250	N	N	890809	14:47:42	168	268	35	18
78	86	LIBYA	GULF OF SIDRA	30.5N 18.5E	29.8N 19.5E	5	NV	250	N	N	890809	14:48:15	168	270	33	18
78	87	LIBYA	IRRIGATED AGRICULTURE	27.0N 22.5E	27.4N 21.5E	0	NV	250	N	N	890809	14:49:03	169	273	31	18
78	88	LIBYA	AL KUFRAH	26.0N 23.5E	24.3N 23.3E	0	NV	250	N	Y	890809	14:50:08	169	275	29	18
78	89	LIBYA	AL KUFRAH	24.0N 23.5E	23.8N 24.2E	0	NV	250	N	Y	890809	14:50:11	169	276	28	18
78	90	LIBYA	JABAL ADENAT	22.0N 25.0E	22.4N 25.2E	0	NV	250	N	Y	890809	14:50:36	169	277	27	18
78	91	LIBYA	JABAL ARKENU	22.0N 25.0E	22.1N 25.4E	0	NV	250	N	Y	890809	14:50:41	169	277	27	18
78	92	SUDAN	SAND DUNES	14.2N 30.6E	14.2N 30.6E	30		250	N	N	890809	14:53:07	170	282	20	18
78	93	SUDAN	SAND DUNES		13.9N 30.8E	50		250	N	N	890809	14:53:12	170	282	20	18
78	94	SUDAN	SAND DUNES		13.2N 31.3E	40		250	N	N	890809	14:53:26	170	282	19	18
78	95	SUDAN	STREAM		12.2N 31.8E	10		250	N	N	890809	14:53:43	170	283	19	18
78	96	ETHIOPIA	LAKE RUDOLF, FIRES, SMOKE	4.5N 36.0E	5.6N 35.7E	5	NV	250	N	N	890809	14:55:42	171	285	13	18
78	97	KENYA	LAKE RUDOLF	4.0N 36.0E	5.4N 35.8E	5	NV	250	N	N	890809	14:55:46	171	285	13	18
78	98	KENYA	LAKE RUDOLF	3.5N 36.0E	5.2N 36.0E	5	LO	250	N	N	890809	14:55:50	171	285	12	18
78	99	KENYA	LAVA		1.8N 37.0E	50		250	N	N	890809	14:56:56	171	286	9	18
78	100	KENYA	LAVA		0.2N 38.1E	10		250	N	N	890809	14:57:19	171	286	8	18
78	101	AFRICA	CLOUDS		5.85 42.3E	90	HO	250	N	N	890809	14:59:04	171	286	3	18
78	102	AFRICA	CLOUDS		6.05 42.3E	90	HO	250	N	N	890809	14:59:10	171	286	2	18
78	103	AFRICA	CLOUDS		6.25 42.5E	90	HO	250	N	N	890809	14:59:14	171	286	2	18
78	104	AFRICA	CLOUDS		6.75 42.8E	100	HO	250	N	N	890809	14:59:23	171	286	2	18
78	105	AFRICA	CLOUDS		7.45 43.1E	100	HO	250	N	N	890809	14:59:35	171	286	1	18
78	106	AFRICA	CLOUDS, ORBITER			100	HO	250	N	N						
78	107	AFRICA	CLOUDS, ORBITER			100	HO	250	N	N						
78	1	ATLANTIC OCEAN	SUNGLINT		30.5N 63.6W	70	LO	100	N	N	890809	11:20:13	161	83	21	16
78	2	ATLANTIC OCEAN	SUNGLINT		39.2N 54.9W	50	LO	100	N	N	890809	11:23:09	161	93	29	16



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL	OR
79	3	ATLANTIC OCEAN	SUNGLINT		40.1N 53.8W	38 LO	100 N N	890809	11:23:28	161 84 30	16
79	4	ATLANTIC OCEAN	SUNGLINT		41.2N 52.4W	60 HO	100 N N	890809	11:23:52	161 86 31	16
79	5	ATLANTIC OCEAN	SUNGLINT		41.5N 52.0W	60 HO	100 N N	890809	11:23:59	161 86 31	16
79	6	NORWAY	SOUTHERN COASTLINE	58.5N 6.5E	57.0N 6.9E	70 NV	100 N Y	890809	11:34:25	162 179 49	16
79	7	NORWAY	SOUTHERN COASTLINE	58.5N 6.5E	56.9N 8.3E	70 NV	100 N Y	890809	11:34:37	162 181 49	16
79	8	USSR-EUROPEAN	AGRICULTURE, CLOUDS		53.1N 30.2E	90	100 N N	890809	11:38:02	162 215 49	16
79	9	USSR-EUROPEAN	AGRICULTURE, CLOUDS		52.7N 31.5E	90	100 N N	890809	11:38:16	162 217 48	16
79	10	USSR-EUROPEAN	SEA OF AZOV	47.5N 35.5E	49.6N 38.7E	80 LO	100 N N	890809	11:38:50	163 231 47	16
79	11	USSR-EUROPEAN	TAGANROGSKIY BAY	47.0N 38.5E	49.1N 40.9E	80 LO	100 N N	890809	11:40:05	163 233 47	16
79	12	USSR-EUROPEAN	TAGANROGSKIY BAY	47.0N 39.0E	48.5N 42.1E	80 LO	100 N N	890809	11:40:21	163 235 46	16
79	13	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	42.0N 45.5E	45.8N 47.1E	80 LO	100 N N	890809	11:41:28	163 243 45	16
79	14	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	42.0N 46.0E	45.7N 47.3E	80 LO	100 N N	890809	11:41:31	163 243 44	16
79	15	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	41.5N 46.5E	45.5N 47.5E	80 LO	100 N N	890809	11:41:35	163 243 44	16
79	16	USSR-EUROPEAN	CASPIAN SEA	44.5N 47.5E	44.8N 48.7E	50 NV	100 N Y	890809	11:41:52	163 245 44	16
79	17	USSR-EUROPEAN	CASPIAN SEA	44.0N 47.5E	44.6N 49.0E	50 NV	100 N Y	890809	11:41:56	163 246 44	16
79	18	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.0E	42.5N 52.1E	10 NV	100 N Y	890809	11:42:45	163 251 42	16
79	19	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	42.5N 53.0E	42.4N 52.2E	20 NV	100 N Y	890809	11:42:47	163 251 42	16
79	20	USSR-EUROPEAN	KAZAKHSKIY BAY	42.5N 52.5E	42.2N 52.5E	20 NV	100 N Y	890809	11:42:51	163 251 42	16
79	21	USSR-EUROPEAN	KAZAKHSKIY BAY	43.0N 52.0E	42.1N 52.7E	20 NV	100 N Y	890809	11:42:54	163 252 42	16
79	22	USSR-EUROPEAN	CASPIAN SEA COASTLINE	43.5N 51.5E	41.9N 52.9E	30 NV	100 N Y	890809	11:42:58	163 252 42	16
79	23	USSR-EUROPEAN	KOPETDAG MOUNTAINS, IRAN	38.5N 56.0E	40.3N 54.9E	5 LO	100 N N	890809	11:43:32	164 255 41	16
79	24	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 55.5E	40.1N 55.2E	0 NV	100 N Y	890809	11:43:37	164 255 41	16
79	25	USSR-EUROPEAN	BOL'SHOY BALKHAN	39.5N 55.0E	40.0N 55.4E	5 NV	100 N Y	890809	11:43:48	164 256 41	16
79	26	USSR-EUROPEAN	UZBOY RIVER	39.5N 55.5E	39.8N 55.5E	5 NV	100 N Y	890809	11:43:43	164 256 40	16
79	27	USSR-EUROPEAN	UZBOY RIVER	40.0N 56.5E	39.7N 55.7E	5 NV	100 N Y	890809	11:43:45	164 256 40	16
79	28	USSR-EUROPEAN	UZBOY RIVER	40.5N 57.0E	39.6N 55.8E	0 NV	100 N Y	890809	11:43:48	164 256 40	16
79	29	USSR-EUROPEAN	UZBOY RIVER	39.5N 57.0E	39.1N 56.0E	0 NV	100 N Y	890809	11:43:52	164 257 40	16
79	30	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 57.0E	39.2N 56.2E	0 NV	100 N Y	890809	11:43:55	164 257 40	16
79	31	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 57.0E	39.1N 56.4E	0 NV	100 N Y	890809	11:43:58	164 257 40	16
79	32	USSR-EUROPEAN	KOPETDAG MOUNTAINS, IRAN	38.5N 57.0E	38.8N 56.7E	5 NV	100 N Y	890809	11:44:04	164 258 40	16
79	33	IRAN	KOPETDAG MOUNTAINS, USSR	37.5N 57.5E	38.3N 57.3E	0 NV	100 N Y	890809	11:44:15	164 259 39	16
79	34	IRAN	KOPETDAG MOUNTAINS, USSR	37.5N 58.0E	37.8N 57.9E	0 NV	100 N Y	890809	11:44:26	164 260 39	16
79	35	USSR-MIDDLE	KARA KUM	38.0N 60.0E	37.6N 58.1E	0 LO	100 N N	890809	11:44:30	164 260 39	16
79	36	USSR-MIDDLE	KARA KUM	37.5N 60.5E	37.1N 58.6E	0 LO	100 N N	890809	11:44:39	164 261 38	16
79	37	IRAN	USSR BORDER	36.5N 60.0E	36.9N 58.8E	0 NV	100 N N	890809	11:44:43	164 261 38	16
79	38	USSR-MIDDLE	KARA KUM	37.5N 64.0E	36.1N 59.7E	5 LO	100 N N	890809	11:45:01	164 262 38	16
79	39	IRAN	AFGHANISTAN, USSR	35.5N 60.5E	35.5N 60.3E	0 NV	100 N N	890809	11:45:13	164 263 37	16
79	40	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 62.5E	33.7N 62.0E	0 NV	100 N Y	890809	11:45:44	164 264 36	16
79	41	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 63.0E	33.6N 62.2E	0 NV	100 N Y	890809	11:45:51	164 264 36	16
79	42	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 63.0E	33.4N 62.4E	0 NV	100 N Y	890809	11:45:55	164 264 36	16
79	43	AFGHANISTAN	NORTHWESTERN MOUNTAINS	34.0N 64.0E	33.2N 62.4E	0 NV	100 N Y	890809	11:45:58	164 264 35	16
79	44	AFGHANISTAN	NORTHWESTERN MOUNTAINS	32.5N 64.0E	32.8N 62.9E	0 NV	100 N Y	890809	11:46:06	164 267 35	16
79	45	AFGHANISTAN	NORTHWESTERN MOUNTAINS	32.5N 64.5E	32.7N 63.0E	0 NV	100 N Y	890809	11:46:09	164 267 35	16
79	46	AFGHANISTAN	HELMAND RIVER	33.0N 65.5E	32.5N 63.2E	0 LO	100 N N	890809	11:46:32	164 267 35	16
79	47	AFGHANISTAN	HELMAND RIVER	33.0N 66.0E	32.3N 63.4E	5 LO	100 N N	890809	11:46:16	164 267 35	16
79	48	AFGHANISTAN	EASTERN MOUNTAINS	34.0N 68.0E	32.1N 63.5E	10 LO	100 N N	890809	11:46:20	164 268 35	16
79	49	AFGHANISTAN	MARGON DESERT	31.0N 65.5E	31.2N 64.3E	5 NV	100 N Y	890809	11:46:37	164 269 34	16
79	50	PAKISTAN	AFGHANISTAN BORDER	31.0N 67.0E	31.6N 64.5E	10 NV	100 N Y	890809	11:46:41	164 269 34	16
79	51	PAKISTAN	AFGHANISTAN BORDER	29.5N 65.0E	30.4N 65.0E	0 NV	100 H Y	890809	11:46:53	164 270 33	16
79	52	PAKISTAN	AFGHANISTAN BORDER	29.5N 66.0E	30.1N 65.3E	10 NV	100 N Y	890809	11:46:59	164 270 33	16
79	53	AFGHANISTAN	PAKISTAN BORDER	33.0N 62.0E	29.2N 66.1E	20 LO	100 N N	890809	11:47:17	164 271 32	16
79	54	PAKISTAN	AFGHANISTAN BORDER	29.5N 66.5E	27.3N 67.1E	30 LO	100 N N	890809	11:47:41	165 272 31	16
79	55	PAKISTAN	INDUS RIVER	27.5N 68.5E	26.8N 68.0E	5 NV	100 N Y	890809	11:48:02	165 273 30	16
79	56	PAKISTAN	INDUS RIVER	28.0N 68.5E	26.6N 68.1E	5 NV	100 N Y	890809	11:48:06	165 274 30	16
79	57	PAKISTAN	INDUS RIVER	28.0N 69.5E	26.5N 68.2E	10 NV	100 N Y	890809	11:48:08	165 274 30	16
79	58	PAKISTAN	INDUS RIVER	28.5N 70.5E	26.3N 68.3E	10 LO	100 N Y	890809	11:48:11	165 274 30	16
79	59	PAKISTAN	INDUS RIVER	26.0N 68.5E	23.2N 70.6E	20 LO	100 N N	890809	11:49:10	165 276 27	16
79	60	INDIA	EASTERN GHATS	15.0N 77.0E	14.8N 76.2E	70 NV	100 N Y	890809	11:51:41	165 282 20	16
79	61	INDIA	EASTERN GHATS	15.0N 78.0E	14.5N 76.4E	70 NV	100 N Y	890809	11:51:50	165 282 20	16
79	62	INDIA	EASTERN GHATS	15.6N 78.0E	14.3N 76.5E	70 NV	100 N Y	890809	11:51:53	165 282 20	16
79	63	INDIA	EASTERN GHATS	14.0N 77.0E	14.1N 76.7E	70 NV	100 N N	890809	11:51:58	165 282 19	16
79	64	INDIA	EASTERN GHATS	14.0N 78.5E	13.5N 77.1E	60 NV	100 N Y	890809	11:52:09	165 282 19	16
79	65	INDIA	EASTERN GHATS	13.5N 78.0E	13.6N 77.3E	60 NV	100 N Y	890809	11:52:17	165 283 19	16
79	66	INDIA	EASTERN GHATS	12.5N 78.5E	12.6N 77.6E	70 NV	100 N Y	890809	11:52:21	165 283 18	16
79	67	INDIA	EASTERN GHATS	12.0N 78.0E	12.1N 77.9E	70 NV	100 N Y	890809	11:52:34	165 283 18	16
79	68	INDIA	EASTERN GHATS	12.0N 79.0E	11.8N 78.2E	70 NV	100 N Y	890809	11:52:43	165 283 17	16
79	69	INDIA	COLEROON RIVER	11.0N 79.0E	11.1N 78.5E	70 NV	100 N Y	890809	11:52:52	165 283 17	16
79	70	INDIA	PALK STRAIT	10.5N 80.0E	10.2N 79.0E	30 NV	100 N Y	890809	11:53:08	165 284 16	16
79	71	INDIA	PALK STRAIT	10.0N 78.5E	9.3N 79.6E	60 NV	100 N Y	890809	11:53:24	165 284 15	16
79	72	SRI LANKA	CLOUDS	8.5N 80.5E	8.0N 80.4E	70 NV	100 N N	890809	11:53:48	166 284 14	16

**TABLE 4.3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
79	73	MEXICO	CLOUDS, MOUNTAINS		18.8N 95.3W	60 LO	100 H N 890809	12:07:06	161 77 10 17
79	74	MEXICO	CLOUDS, MOUNTAINS		19.0N 95.2W	60 LO	100 H N 890809	12:07:09	161 77 10 17
79	75	MEXICO	CLOUDS, MOUNTAINS		19.3N 95.0W	60 LO	100 H N 890809	12:07:15	161 77 10 17
79	76	USA-SC	APPALACHIAN MOUNTAINS	35.0N 82.5W	31.6N 82.8W	10 NV	100 H N 890809	12:52:07	161 87 24 17
79	77	USA-NC	APPALACHIAN MOUNTAINS	35.5N 83.0W	35.8N 82.4W	10 NV	100 H Y 890809	12:52:15	161 87 25 17
79	78	USA-TN	APPALACHIAN MOUNTAINS	36.0N 82.5W	35.4N 82.6W	10 NV	100 H Y 890809	12:52:22	161 88 25 17
79	79	USA-TN	APPALACHIAN MOUNTAINS	36.5N 82.0W	35.8N 81.6W	10 NV	100 H Y 890809	12:52:30	161 88 25 17
79	80	USA-VA	APPALACHIAN MOUNTAINS	37.5N 79.5W	36.8N 80.6W	30 NV	100 H Y 890809	12:52:51	161 88 26 17
79	81	USA-VA	APPALACHIAN MOUNTAINS	38.0N 79.5W	37.2N 80.1W	30 NV	100 H Y 890809	12:52:59	161 88 27 17
79	82	USA-VA	APPALACHIAN MOUNTAINS	38.5N 79.0W	37.5N 79.8W	20 NV	100 H Y 890809	12:53:05	161 88 27 17
79	83	USA-VA	APPALACHIAN MOUNTAINS	38.5N 79.0W	37.8N 79.4W	10 NV	100 H Y 890809	12:53:14	161 91 27 17
79	84	USA-DE	DELAWARE BAY	39.5N 75.5W	39.5N 77.5W	5 LO	100 H N 890809	12:53:48	161 93 29 17
79	85	USA-MD	CHESAPEAKE BAY, BALTIMORE	38.5N 76.0W	39.8N 77.0W	5 LO	100 H N 890809	12:53:54	161 93 29 17
79	86	USA-PA	PHILADELPHIA	40.6N 75.5W	40.3N 76.6W	5 NV	100 H Y 890809	12:54:04	161 94 30 17
79	87	USA-NJ	NEWARK, NEW YORK	41.0N 74.0W	40.9N 75.8W	20 NV	100 H Y 890809	12:54:17	161 95 30 17
79	88	CANADA-Q	ST. LAWRENCE RIVER	48.5N 69.5W	46.4N 67.7W	50 LO	100 H N 890809	12:54:23	161 105 35 17
79	89	CANADA-NS	CHALEUR BAY	48.0N 66.0W	46.8N 66.9W	30 NV	100 H N 890809	12:54:33	161 106 36 17
79	90	CANADA-N	NEWFOUNDLAND	49.5N 58.5W	50.2N 59.9W	20 NV	100 H N 890809	12:54:44	162 115 39 17
79	91	CANADA-Q	JACQUES-CARTIER PASSAGE	50.5N 63.0W	50.8N 58.4W	50 LO	100 H N 890809	12:54:21	162 117 40 17
79	92	CANADA-N	NEWFOUNDLAND, WHITE BAY	50.5N 56.5W	51.1N 57.7W	50 NV	100 H N 890809	12:54:29	162 118 40 17
79	93	CANADA-H	LABRADOR SEA	50.5N 55.5W	51.5N 56.6W	60 NV	100 H N 890809	12:54:42	162 120 41 17
79	94	CANADA-N	LABRADOR SEA	53.0N 55.5W	52.2N 54.7W	50 NV	100 H N 890809	12:54:43	162 122 41 17
79	95	CANADA-H	LABRADOR SEA	55.0N 59.5W	52.7N 53.1W	80 HO	100 H N 890809	12:54:29	162 125 42 17
79	96	ATLANTIC OCEAN	CLOUDS		53.7N 49.7W	100 HO	100 H N 890809	12:54:56	162 129 43 17
79	102	SYRIA	EUPHRATES RIVER	36.0N 38.0E	39.8N 32.6E	20 HO	100 H N 890809	13:14:16	167 254 41 17
79	103	JORDAN	ISRAEL, DEAD SEA	32.0N 36.0E	34.5N 34.3E	5 LO	100 H N 890809	13:16:05	168 264 37 17
79	104	JORDAN	ISRAEL, SEA OF GALILEE	32.5N 36.0E	34.4N 34.4E	5 LO	100 H N 890809	13:16:08	168 265 37 17
79	105	SYRIA	ISRAEL, SEA OF GALILEE	33.0N 36.0E	34.1N 34.7E	5 LO	100 H N 890809	13:16:14	168 265 36 17
80	1	SWEDEN	SHIP WAKE, BALTIC SEA	56.0N 15.0E	57.1N 12.7E	70 LO	100 H N 890810	10:11:20	161 157 47 31
80	2	SWEDEN	SHIP WAKE, BALTIC SEA	55.5N 15.5E	57.1N 14.1E	60 LO	100 H N 890810	10:11:32	161 159 47 31
80	3	SWEDEN	GOTLAND	57.5N 19.0E	57.1N 15.8E	80 LO	100 H N 890810	10:11:46	161 162 47 31
80	4	SWEDEN	STOCKHOLM	59.5N 17.0E	57.1N 19.1E	70 LO	100 H N 890810	10:12:14	162 167 48 31
80	5	USSR-EUROPEAN	LATVIA, GULF OF RIGA	57.5N 22.5E	57.0N 21.1E	80 NV	100 H Y 890810	10:12:31	162 170 48 31
80	6	USSR-EUROPEAN	VOLGA RIVER	53.0N 49.0E	52.1N 48.7E	80 NV	100 H Y 890810	10:16:52	162 213 50 31
80	7	USSR-EUROPEAN	VOLGA RIVER	52.5N 48.0E	51.8N 49.5E	80 NV	100 H Y 890810	10:17:01	162 215 50 31
80	8	USSR-EUROPEAN	VOLGA RIVER	52.0N 47.5E	51.7N 49.8E	80 NV	100 H Y 890810	10:17:45	162 215 50 31
80	9	USSR-EUROPEAN	VOLGA RIVER	51.5N 46.5E	51.5N 50.2E	90 LO	100 H N 890810	10:17:09	162 216 50 31
80	10	USSR-EUROPEAN	URAL RIVER, LAKE SHALKAR	50.5N 51.5E	50.9N 51.8E	80 NV	100 H Y 890810	10:17:28	162 219 50 31
80	11	USSR-EUROPEAN	URAL RIVER, LAKE SHALKAR	49.5N 51.5E	50.6N 52.5E	70 NV	100 H Y 890810	10:17:56	162 220 49 31
80	12	USSR-EUROPEAN	CLOUDS	49.5N 49.5E	50.3N 53.4E	80 LO	100 H N 890810	10:17:46	163 221 49 31
80	13	USSR-MIDDLE	ARAL SEA	46.6N 60.0E	46.7N 62.7E	70 NV	100 H Y 890810	10:19:21	163 234 48 31
80	14	USSR-EUROPEAN	ARAL SEA	45.5N 59.0E	46.5N 61.0E	70 NV	100 H Y 890810	10:19:25	163 234 48 31
80	15	USSR-MIDDLE	ARAL SEA	45.5N 61.5E	46.1N 61.7E	30 NV	100 H Y 890810	10:19:35	163 236 48 31
80	16	USSR-MIDDLE	ARAL SEA	44.5N 60.5E	45.7N 62.4E	10 LO	100 H Y 890810	10:19:45	163 237 47 31
80	17	USSR-MIDDLE	DESERT EAST OF ARAL SEA	44.5N 63.5E	45.2N 63.2E	20 NV	100 H Y 890810	10:19:56	163 238 47 31
80	18	USSR-MIDDLE	DESERT EAST OF ARAL SEA	44.0N 62.5E	44.8N 63.8E	10 NV	100 H Y 890810	10:20:06	163 239 47 31
80	19	USSR-MIDDLE	ARAL SEA	44.0N 62.0E	44.3N 64.6E	20 LO	100 H Y 890810	10:20:17	163 241 47 31
80	20	USSR-MIDDLE	SYR RIVER	45.0N 65.0E	44.6N 65.1E	20 NV	100 H N 890810	10:20:25	163 242 47 31
80	21	USSR-MIDDLE	SYR RIVER	44.5N 66.0E	43.4N 64.6E	5 NV	100 H Y 890810	10:20:39	163 243 46 31
80	22	USSR-MIDDLE	SYR RIVER	44.5N 67.0E	43.6N 64.6E	5 NV	100 H Y 890810	10:20:48	163 244 46 31
80	23	USSR-MIDDLE	SYR RIVER	43.5N 67.5E	42.5N 67.3E	0 NV	100 H Y 890810	10:20:59	163 245 46 31
80	24	USSR-MIDDLE	SYR RIVER	42.5N 68.5E	41.8N 68.2E	0 NV	100 H Y 890810	10:21:14	163 247 45 31
80	25	USSR-MIDDLE	SYR RIVER	42.0N 68.0E	41.5N 68.6E	0 NV	100 H Y 890810	10:21:21	163 248 45 31
80	26	USSR-MIDDLE	LAKE AYDARKUL	41.0N 67.5E	41.2N 69.0E	0 NV	100 H Y 890810	10:21:28	163 248 45 31
80	27	USSR-MIDDLE	TASHKENT	41.5N 70.0E	49.5N 69.9E	5 NV	100 H Y 890810	10:21:43	163 250 45 31
80	28	USSR-MIDDLE	TASHKENT, SYR RIVER	40.5N 68.5E	40.3N 70.2E	0 NV	100 H Y 890810	10:21:48	163 250 44 31
80	29	USSR-MIDDLE	KOKAND, SYR RIVER	40.5N 71.0E	49.0N 70.5E	5 NV	100 H Y 890810	10:21:53	163 251 44 31
80	30	USSR-MIDDLE	KAYRAKUMSKOYE RESERVOIR	40.0N 69.5E	39.8N 70.7E	0 NV	100 H Y 890810	10:21:57	163 251 44 31
80	31	USSR-MIDDLE	KAYRAKUMSKOYE RESERVOIR	39.5N 70.5E	39.9N 71.7E	0 NV	100 H Y 890810	10:22:15	164 253 44 31
80	32	USSR-MIDDLE	PAMIRS	39.0N 72.0E	38.6N 72.2E	0 NV	100 H Y 890810	10:22:24	164 254 43 31
80	33	USSR-MIDDLE	PAMIRS	39.0N 73.0E	38.3N 72.5E	0 NV	100 H Y 890810	10:22:30	164 254 43 31
80	34	USSR-MIDDLE	PAMIRS	38.5N 72.0E	37.7N 73.2E	0 LO	100 H N 890810	10:22:42	164 255 43 31
80	35	AFGHANISTAN	HINDU KUSH	37.0N 73.5E	37.0N 73.9E	5 NV	100 H Y 890810	10:22:56	164 257 42 31
80	36	PAKISTAN	HINDU KUSH	36.5N 73.5E	34.3N 74.7E	10 NV	100 H Y 890810	10:23:10	164 258 42 31
80	37	CHINA	TIBET, PANGONG LAKE	34.0N 79.0E	34.3N 76.7E	70 LO	100 H N 890810	10:23:52	164 261 40 31
80	38	INDIA	SUTLEJ RIVER	32.0N 76.0E	33.7N 77.3E	50 LO	100 H N 890810	10:24:03	164 262 40 31
80	39	CHINA	TIBET	30.5N 81.5E	32.1N 78.8E	70 LO	100 H N 890810	10:24:35	164 264 39 31
80	40	CHINA	TIBET	30.5N 81.5E	29.4N 81.1E	80 NV	100 H N 890810	10:25:28	164 268 37 31
80	41	NEPAL	HIMALAYAS	29.5N 83.0E	28.6N 81.8E	70 NV	100 H Y 890810	10:25:43	164 269 36 31
80	42	NEPAL	HIMALAYAS	29.5N 83.0E	28.2N 82.1E	70 NV	100 H Y 890810	10:25:51	164 269 36 31

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
88	43	BAHAMAS	ELEUTHERA ISLAND	25.5N 76.5W	26.7N 76.8W	46 NV	100 O N	890810	11:27:00	161 78 10 32
88	44	BAHAMAS	ANDROS ISLAND	24.5N 78.0W	25.4N 75.4W	50 LO	100 O N	890810	11:27:23	161 78 11 32
88	45	BAHAMAS	GREAT ABACO ISLAND	26.5N 77.5W	26.3N 74.7W	60 LO	100 O N	890810	11:27:40	161 78 12 32
88	46	CANADA-NS	SABLE ISLAND	44.0N 60.0W	43.1N 57.6W	50 LO	100 N N	890810	11:33:21	161 95 28 32
88	47	CANADA-NS	CAPE BRETON ISLAND	46.0N 60.5W	43.9N 56.4W	20 LO	100 N N	890810	11:33:39	161 96 29 32
88	48	CANADA-NS	CAPE BRETON ISLAND	45.5N 61.5W	44.2N 56.8W	40 HO	100 N N	890810	11:33:46	161 97 29 32
88	49	CANADA-N	NEWFOUNDLAND	48.0N 55.5W	46.5N 52.3W	30 LO	100 N N	890810	11:34:40	161 101 32 32
88	50	CANADA-N	NEWFOUNDLAND	48.5N 54.5W	46.7N 51.8W	30 LO	100 N N	890810	11:34:46	161 102 32 32
88	50 A	ATLANTIC OCEAN	CLOUDS			50	100 N N			
88	51	ATLANTIC OCEAN	SUNGLINT		49.4N 46.4W	60	100 N N	890810	11:35:54	161 100 35 32
88	52	ATLANTIC OCEAN	SUNGLINT		50.8N 43.3W	30	100 N N	890810	11:36:24	161 112 37 32
88	53	BRITAIN	SHETLAND ISLANDS	60.0N 1.5W	57.1N 2.6W	60 LO	100 N N	890810	11:42:57	162 168 48 32
88	54	DENMARK	NORTH SEA COASTLINE	55.0N 8.5E	56.1N 8.1E	80 NV	100 N N	890810	11:44:30	162 184 49 32
88	55	FED REP OF GERMANY	ELBE RIVER	54.0N 9.0E	55.9N 9.6E	40 LO	100 N N	890810	11:44:44	162 187 50 32
88	56	SWEDEN	BALTIC SEA COASTLINE	56.5N 18.0E	55.4N 12.9E	60 LO	100 N N	890810	11:45:14	162 192 50 32
88	57	POLAND	GULF OF DANZIG	54.5N 18.0E	55.1N 14.3E	70 LO	100 N N	890810	11:45:27	162 194 50 32
88	58	POLAND	WISLA RIVER	53.5N 18.5E	54.5N 17.2E	70 NV	100 N N	890810	11:45:55	162 199 50 32
88	59	USSR-EUROPEAN	DNEPR RIVER	47.5N 34.5E	49.2N 32.8E	60 LO	100 N N	890810	11:48:27	163 225 49 32
88	60	USSR-EUROPEAN	SEA OF AZOV	46.0N 35.8E	47.7N 35.8E	40 LO	100 N N	890810	11:49:26	163 230 49 32
88	61	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 36.5E	47.3N 36.6E	40 LO	100 N N	890810	11:49:37	163 232 48 32
88	62	USSR-EUROPEAN	SEA OF AZOV	46.5N 38.8E	47.0N 37.3E	30 NV	100 N Y	890810	11:49:46	163 233 48 32
88	63	USSR-EUROPEAN	SEA OF AZOV	47.0N 37.5E	46.7N 37.7E	30 NV	100 N Y	890810	11:49:52	163 233 48 32
88	64	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 36.5E	46.3N 38.4E	20 LO	100 N N	890810	11:50:01	163 235 48 32
88	65	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.0N 37.0E	45.8N 39.3E	30 LO	100 N N	890810	11:50:14	163 236 48 32
88	66	USSR-EUROPEAN	BLACK SEA	43.5N 40.5E	44.8N 41.0E	50 NV	100 N Y	890810	11:50:39	163 239 47 32
88	67	USSR-EUROPEAN	BLACK SEA	43.0N 41.0E	44.0N 41.3E	40 NV	100 N Y	890810	11:50:43	163 240 47 32
88	68	USSR-EUROPEAN	BLACK SEA	43.0N 41.5E	44.0N 41.5E	40 NV	100 N Y	890810	11:50:47	163 240 47 32
88	69	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.5N 43.8E	43.8N 42.4E	20 NV	100 N Y	890810	11:51:06	163 242 47 32
88	70	USSR-EUROPEAN	BLACK SEA	42.0N 42.0E	43.1N 43.4E	10 LO	100 N N	890810	11:51:16	163 243 46 32
88	71	USSR-EUROPEAN	BLACK SEA	41.5N 41.5E	43.0N 43.6E	20 LO	100 N N	890810	11:51:29	163 244 46 32
88	72	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.5N 44.0E	42.7N 44.1E	30 NV	100 N Y	890810	11:51:27	163 245 46 32
88	73	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 44.5E	42.5N 44.3E	40 NV	100 N Y	890810	11:51:30	163 245 46 32
88	74	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 45.5E	42.4N 44.5E	50 NV	100 N Y	890810	11:51:33	163 245 46 32
88	75	USSR-EUROPEAN	CAUCASUS MOUNTAINS	41.0N 44.0E	42.7N 46.7E	40 NV	100 N Y	890810	11:52:11	163 249 45 32
88	76	USSR-EUROPEAN	KURA RIVER	41.0N 46.5E	40.6N 46.8E	50 NV	100 N Y	890810	11:52:13	163 249 45 32
88	77	USSR-EUROPEAN	LAKE SEVAN	40.5N 46.0E	40.4N 47.0E	50 NV	100 N Y	890810	11:52:16	163 250 45 32
88	78	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.5E	40.3N 47.2E	40 NV	100 N Y	890810	11:52:19	163 250 45 32
88	79	USSR-EUROPEAN	KURA RIVER	41.5N 48.0E	39.5N 47.6E	70 NV	100 N Y	890810	11:52:27	163 251 44 32
88	80	USSR-EUROPEAN	CASPIAN SEA, CAUCASUS MT.	41.0N 48.0E	39.5N 47.8E	70 NV	100 N Y	890810	11:52:30	163 251 44 32
88	81	USSR-EUROPEAN	BAKU, CASPIAN SEA	40.0N 49.5E	39.3N 48.4E	30 NV	100 N N	890810	11:52:40	164 252 44 32
88	82	USSR-EUROPEAN	CASPIAN SEA	39.0N 49.0E	38.8N 48.0E	50 NV	100 N N	890810	11:52:51	164 253 44 32
88	83	IRAN	TEHRAN	36.0N 51.0E	35.2N 52.2E	60 NV	100 N Y	890810	11:53:53	164 259 42 32
88	84	IRAN	TEHRAN	35.5N 52.5E	35.6N 52.4E	50 NV	100 N Y	890810	11:53:54	164 259 42 32
88	85	IRAN	EAST OF TEHRAN	35.0N 52.0E	35.4N 52.6E	5 NV	100 N Y	890810	11:54:01	164 259 41 32
88	86	IRAN	TEHRAN	35.0N 51.5E	35.3N 52.7E	5 NV	100 N Y	890810	11:54:03	164 259 41 32
88	87	IRAN	MOUNTAINS, DESERT	33.5N 54.0E	34.0N 54.0E	0 NV	100 N Y	890810	11:54:28	164 261 41 32
88	88	IRAN	MOUNTAINS, DESERT	33.5N 53.6E	33.8N 54.2E	0 NV	100 N Y	890810	11:54:32	164 262 40 32
88	89	IRAN	GAVKHUM SALT LAKE	32.0N 54.0E	33.0N 55.0E	0 NV	100 N Y	890810	11:54:49	164 263 40 32
88	90	IRAN	GAVKHUM SALT LAKE	32.5N 53.5E	32.8N 55.1E	0 NV	100 N Y	890810	11:54:52	164 263 40 32
88	91	IRAN	GAVKHUM SALT LAKE	33.0N 53.0E	32.5N 55.4E	0 NV	100 N Y	890810	11:54:54	164 264 39 32
88	92	IRAN	GAVKHUM SALT LAKE	32.5N 53.5E	32.2N 55.7E	0 NV	100 N Y	890810	11:55:04	164 264 39 32
88	93	IRAN	MOUNTAINS, DESERT	31.5N 54.0E	32.0N 55.9E	0 NV	100 N Y	890810	11:55:09	164 264 39 32
88	94	IRAN	LUT DESERT	31.0N 57.5E	31.0N 56.7E	0 NV	100 N Y	890810	11:55:27	164 266 38 32
88	95	IRAN	LUT DESERT	31.0N 57.5E	30.9N 56.8E	0 NV	100 N Y	890810	11:55:29	164 266 38 32
88	96	IRAN	LUT DESERT	30.5N 58.0E	30.8N 56.9E	0 NV	100 N Y	890810	11:55:31	164 266 38 32
88	97	IRAN	LUT DESERT	30.0N 58.5E	30.7N 57.0E	5 NV	100 N Y	890810	11:55:34	164 266 38 32
88	98	IRAN	MTNS. WEST OF LUT DESERT	31.0N 57.0E	30.2N 57.4E	0 NV	100 N N	890810	11:55:43	164 267 38 32
88	99	IRAN	MTNS. WEST OF LUT DESERT	30.5N 57.5E	30.1N 57.6E	5 NV	100 N Y	890810	11:55:44	164 267 38 32
88	100	IRAN	MTNS. WEST OF LUT DESERT	29.5N 57.5E	29.9N 57.7E	10 NV	100 N Y	890810	11:55:49	164 267 38 32
88	101	IRAN	STRAIT OF HORMUZ	27.0N 56.0E	28.6N 58.8E	10 LO	100 N N	890810	11:56:14	164 269 37 32
88	102	IRAN	MOUNTAINS, DESERT	28.0N 60.0E	27.1N 59.9E	10 NV	100 N Y	890810	11:56:42	164 270 35 32
88	103	IRAN	MOUNTAINS, DESERT	27.5N 60.5E	26.8N 60.2E	10 NV	100 N Y	890810	11:56:49	164 271 35 32
88	104	IRAN	GULF OF OMAN COASTLINE	26.0N 58.5E	26.2N 60.6E	10 NV	100 N N	890810	11:56:59	164 271 35 32
81	1	SAUDI ARABIA	CLOUDS		25.0N 46.3E	90 HO	100 N N	890809	13:19:22	169 275 29 17
81	2	SAUDI ARABIA	CLOUDS		24.8N 46.5E	80 HO	100 N N	890809	13:19:24	169 275 29 17
81	3	USA-NE	PLATTE RIVER	41.0N 98.0W	38.0N 102.3W	60 LO	100 N N	890809	14:24:07	161 91 27 18
81	4	USA-NE	OMAHA, LINCOLN	41.0N 96.5W	39.7N 100.5W	30 LO	100 N N	890809	14:24:43	161 93 28 18
81	5	USA-SD	MISSOURI RIVER	44.0N 97.0W	40.7N 99.1W	20 LO	100 N N	890809	14:25:04	161 94 30 18
81	6	USA-IA	SIOUX CITY	42.5N 96.5W	41.9N 97.5W	0 NV	100 N N	890809	14:25:31	161 96 31 18
81	7	USA-MN	LAKE SUPERIOR	48.0N 90.0W	47.6N 96.6W	80 HO	100 N N	890809	14:25:45	161 97 31 18

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
81	8	USA-MI	LAKE SUPERIOR	46.5N 90.0W 43.1N 95.0W	00 HO	100 N N	090000	14:25:58	161 98 32	18
81	9	USA-MN	MINNEAPOLIS, ST. PAUL	45.0N 93.0W 43.0N 94.0W	20 NV	100 N N	090000	14:26:13	161 99 33	18
81	10	USA-MN	LAKE SUPERIOR	47.0N 92.0W 44.5N 93.7W	50 LO	100 N N	090000	14:26:20	161 101 33	18
81	11	CANADA-O	GREAT LAKES, CLOUDS	46.0N 91.0W 45.3N 92.5W	00 HO	100 N N	090000	14:26:48	161 102 34	18
81	12	CANADA-O	GREAT LAKES, CLOUDS	47.0N 94.0W 45.6N 92.0W	00 HO	100 N N	090000	14:26:55	161 103 34	18
81	13	USA-MI	GREAT LAKES, CLOUDS	46.5N 87.0W 45.0N 91.5W	30 LO	100 N N	090000	14:27:02	161 104 35	18
81	14	USA-MI	LAKE SUPERIOR	47.0N 89.0W 46.3N 90.0W	00 LO	100 N N	090000	14:27:11	161 104 35	18
81	15	CANADA-O	ALBANY RIVER	51.5N 83.5W 49.0N 83.7W	30 NV	100 N N	090000	14:28:45	162 114 39	18
81	16	CANADA-O	LA GRANDE RIVIERE	53.5N 78.0W 52.0N 75.0W	70 LO	100 N N	090000	14:30:14	162 124 42	18
81	17	FRANCE	BRITTANY	48.0N 2.5W 48.6N 4.0W	30 NV	100 N N	090000	14:41:42	166 233 47	18
81	18	FRANCE	GIROUDE RIVER	45.5N 1.0W 45.5N 1.5E	20 LO	100 N N	090000	14:42:58	166 243 45	18
81	19	FRANCE	MARSEILLE	43.5N 5.0E 43.0N 4.1E	5 NV	100 N Y	090000	14:43:37	166 247 44	18
81	20	FRANCE	MARSEILLE	43.5N 5.5E 43.5N 4.7E	5 NV	100 N Y	090000	14:43:46	166 248 43	18
81	21	FRANCE	MARSEILLE	43.5N 6.0E 43.3N 4.9E	20 NV	100 N Y	090000	14:43:49	166 248 43	18
81	22	FRANCE	CORSICA	42.5N 9.0E 42.7N 5.8E	10 LO	100 N N	090000	14:44:03	167 249 43	18
81	23	FRANCE	CORSICA	42.0N 9.0E 42.5N 6.1E	10 LO	100 N N	090000	14:44:09	167 250 43	18
81	24	ITALY	SARDINIA	40.5N 9.0E 41.6N 7.3E	5 LO	100 N N	090000	14:44:20	167 252 42	18
81	25	ITALY	SARDINIA	39.5N 9.0E 41.0N 8.0E	5 LO	100 N N	090000	14:44:40	167 253 42	18
81	26	ITALY	SARDINIA	40.0N 9.5E 39.8N 9.6E	5 NV	100 N Y	090000	14:45:07	167 255 41	18
81	27	ITALY	SARDINIA	39.5N 9.5E 39.6N 9.8E	5 NV	100 N Y	090000	14:45:11	167 256 41	18
81	28	ITALY	SARDINIA	39.5N 9.5E 39.5N 9.9E	5 NV	100 N Y	090000	14:45:14	167 256 41	18
81	29	ITALY	SICILY	38.0N 13.0E 37.7N 12.0E	10 NV	100 N Y	090000	14:45:52	167 259 39	18
81	30	ITALY	SICILY	37.5N 14.5E 37.5N 12.2E	10 NV	100 N Y	090000	14:45:53	167 259 39	18
81	31	ITALY	SICILY	38.0N 14.5E 37.4N 12.3E	20 NV	100 N Y	090000	14:45:58	167 260 39	18
81	32	LIBYA	TRIPOLI	33.0N 13.5E 34.0N 15.8E	0 LO	100 N N	090000	14:47:06	168 265 37	18
81	33	LIBYA	TRIPOLI	33.0N 14.0E 33.5N 16.2E	0 LO	100 N N	090000	14:47:16	168 265 36	18
81	34	LIBYA	DESERT	29.0N 19.5E	0	100 N N	090000	14:48:20	168 270 33	18
81	35	LIBYA	IRRIGATED AGRICULTURE	27.0N 22.0E 29.1N 20.1E	0 LO	100 N N	090000	14:48:43	168 271 33	18
81	36	LIBYA	SAHARA	26.0N 23.5E 28.9N 21.9E	0 LO	100 N N	090000	14:49:24	169 273 31	18
81	37	EGYPT	GREAT SAND SEA	24.5N 25.5E 25.2N 23.2E	0 LO	100 N N	090000	14:49:57	169 275 30	18
81	38	LIBYA	JABAL ARKENU, J. AUENAT	22.5N 24.5E 23.0N 24.2E	0 LO	100 N N	090000	14:50:24	169 276 28	18
81	39	LIBYA	JABAL ARKENU, J. AUENAT	22.0N 25.0E 23.2N 24.7E	0 NV	100 N N	090000	14:50:35	169 276 28	18
81	40	SUDAN	SAND DUNES	14.3N 30.5E	40	100 N N	090000	14:51:18	170 282 20	18
81	41	SUDAN	AGRICULTURE	12.3N 31.8E	40	100 N N	090000	14:53:54	170 283 19	18
81	42	ETHIOPIA	CLOUDS	6.6N 35.1E	70	100 N N	090000	14:53:57	171 285 14	18
81	43	KENYA	LAKE RUDOLF	4.0N 36.0E 5.6N 35.7E	10 LO	100 N N	090000	14:53:56	171 285 13	18
81	44	KENYA	LAKE RUDOLF, MT. KULAL	2.5N 37.0E 4.2N 36.5E	5 LO	100 N N	090000	14:54:21	171 285 11	18
81	45	KENYA	LAKE RUDOLF, MT. KULAL	2.5N 37.0E 3.5N 36.9E	5 NV	100 N N	090000	14:54:33	171 285 11	18
81	46	KENYA	LAKE RUDOLF, MT. KULAL	3.0N 36.5E 2.0N 37.4E	5 LO	100 N N	090000	14:57:00	171 290 10	18
81	47	KENYA	LAVA	0.6N 38.6E	30	100 N N	090000	14:57:25	171 296 8	18
81	48	AFRICA	CLOUDS	1.9S 40.0E	90 HO	100 N N	090000	14:58:10	171 296 6	18
81	49	AFRICA	CLOUDS	2.5S 40.4E	90 HO	100 N N	090000	14:58:21	171 296 6	18
81	50	CANADA-BC	COAST MOUNTAINS	50.0N 126.5W 48.2N 133.3W	70 LO	100 N N	090000	17:29:17	161 106 36	20
81	51	CANADA-BC	COAST MOUNTAINS	51.5N 126.5W 49.3N 131.1W	80 LO	100 N N	090000	17:29:45	162 111 38	20
81	52	CANADA-BC	COAST MOUNTAINS	52.0N 125.0W 49.0N 130.0W	50 LO	100 N N	090000	17:29:58	162 113 38	20
81	53	CANADA-BC	COAST MOUNTAINS	52.5N 126.0W 50.0N 127.4W	80 LO	100 N N	090000	17:30:16	161 116 39	20
81	54	CANADA-BC	COAST MOUNTAINS	52.5N 125.5W 51.2N 126.4W	90 LO	100 N N	090000	17:30:28	161 118 40	20
81	55	CANADA-BC	FRASER RIVER	53.5N 122.0W 52.0N 124.1W	70 LO	100 N N	090000	17:30:53	161 121 40	20
81	56	CANADA-BC	FRASER RIVER	53.5N 122.0W 52.3N 123.3W	70 LO	100 N N	090000	17:31:02	161 122 41	20
81	57	CANADA-BC	FRASER RIVER	54.0N 122.0W 52.6N 122.6W	70 LO	100 N N	090000	17:31:10	161 123 41	20
81	58	CANADA-BC	FRASER RIVER	54.0N 120.5W 53.0N 121.2W	80 NV	100 N N	090000	17:31:25	161 125 42	20
81	59	CANADA-A	ATHABASCA RIVER	58.0N 110.0W 54.5N 115.4W	50 HO	100 N N	090000	17:32:24	161 133 43	20
81	60	CANADA-A	PEACE RIVER, CARIBOU MTS.	58.5N 116.0W 55.0N 113.1W	30 LO	100 N N	090000	17:32:46	161 136 44	20
81	61	CANADA-S	CREE LAKE	58.0N 106.5W 55.7N 109.5W	60 LO	100 N N	090000	17:33:20	161 141 43	20
81	62	CANADA-S	WOLLASTON LAKE	58.0N 103.0W 56.2N 105.0W	60 LO	100 N N	090000	17:33:52	161 146 46	20
81	63	CANADA-NT	LAKE ATHABASCA	60.5N 110.0W 56.4N 104.7W	30 HO	100 N N	090000	17:34:03	161 148 46	20
81	64	CANADA-NT	HUDSON BAY, ICE	57.0N 85.4W	40	100 N N	090000	17:34:46	162 176 49	20
81	65	CANADA-NT	BELCHER ISLANDS	56.0N 79.5W 56.0N 82.4W	80 LO	100 N N	090000	17:37:15	162 181 49	20
81	66	CANADA-Q	LA GRANDE RIVIERE	53.5N 77.0W 54.3N 77.2W	80 LO	100 N N	090000	17:38:01	162 189 49	20
81	67	CANADA-Q	LA GRANDE RIVIERE	53.5N 77.0W 56.1N 75.6W	80 LO	100 N N	090000	17:38:15	162 191 49	20
81	68	CLOUDS	CLOUDS		80 HO	100 N N				21
81	69	ATLANTIC OCEAN	CLOUDS	26.3N 47.0W	80 HO	100 N N	090000	19:20:59	164 272 32	21
81	70	ATLANTIC OCEAN	CLOUDS	26.4N 46.7W	80 HO	100 N N	090000	19:21:06	164 273 31	21
81	71	ATLANTIC OCEAN	CLOUDS	19.0N 41.9W	70 HO	100 N N	090000	19:23:12	165 278 26	21
81	72	ATLANTIC OCEAN	CLOUDS	18.0N 41.3W	70 HO	100 N N	090000	19:23:20	165 279 25	21
81	73	ATLANTIC OCEAN	CLOUDS	18.5N 41.0W	70 HO	100 N N	090000	19:23:36	165 279 25	21
81	74	USA-MN	AGRICULTURE, LAKES	48.5N 95.0W 50.4N 100.0W	40 LO	100 N N	090000	20:42:58	162 225 48	22
81	75	USA-MN	AGRICULTURE, LAKES	48.0N 95.0W 49.2N 97.3W	40 LO	100 N N	090000	20:43:32	163 230 48	22
81	76	USA-MN	AGRICULTURE, LAKES	48.0N 94.5W 49.1N 97.0W	40 LO	100 N N	090000	20:43:35	163 230 48	22
81	77	USA-WI	LAKE SUPERIOR	46.5N 92.0W 47.4N 93.7W	80 LO	100 N N	090000	20:44:19	163 236 47	22

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
81	78	USA-WI	LAKE MICHIGAN	43.0N 84.5W	43.0N 84.6W	80 LO	100 N H 890809	20:43:02	163 241 46 22
81	79	USA-MI	LAKE MICHIGAN, L. HURON	43.5N 85.0W	43.0N 89.6W	80 LO	100 N H 890809	20:43:16	163 242 45 22
81	80	USA-MI	LAKE MICHIGAN, L. HURON	43.5N 84.5W	44.6N 88.9W	80 LO	100 N H 890809	20:43:27	163 244 43 22
81	81	USA-MI	LAKE HURON, CLOUDS	44.0N 84.5W	43.4N 87.1W	80 LO	100 N H 890809	20:43:53	163 247 44 22
81	82	CANADA-O	GREAT LAKES, CLOUDS	43.0N 80.5W	42.9N 84.4W	80 HO	100 N H 890809	20:44:05	163 248 44 22
81	83	USA-WV	OHIO RIVER	39.0N 81.5W	38.1N 80.4W	30 HV	100 N Y 890809	20:47:48	163 257 41 22
81	84	USA-WV	OHIO RIVER	38.0N 82.5W	38.0N 80.3W	40 HV	100 N Y 890809	20:47:51	163 258 41 22
81	85	USA-TN	APPALACHIAN MOUNTAINS	34.5N 82.5W	37.2N 79.4W	70 LO	100 N H 890809	20:48:00	164 259 40 22
81	86	VENEZUELA	RIO GRANDE, BOCA GRANDE	9.0N 60.5W	10.7N 59.2W	50 HV	100 N Y 890809	20:56:20	165 283 19 22
81	87	VENEZUELA	RIO GRANDE, BOCA GRANDE	9.0N 60.5W	10.3N 58.9W	40 HV	100 N Y 890809	20:56:36	165 283 18 22
81	88	GUYANA	ESSEQUIBO RIVER	8.0N 59.0W	9.5N 58.5W	40 HV	100 N Y 890809	20:54:50	165 284 18 22
81	89	GUYANA	GEORGETOWN, ESSEQUIBO R.	7.0N 58.5W	9.0N 58.2W	40 HV	100 N Y 890809	20:57:00	165 284 17 22
81	90	GUYANA	COURANTYNE RIVER	6.5N 57.5W	8.0N 57.6W	30 LO	100 N H 890809	20:57:18	165 284 16 22
81	91	SURINAM	COURANTYNE RIVER	6.0N 57.0W	6.4N 56.7W	40 HV	100 N H 890809	20:57:46	165 285 15 22
81	92	SOUTH AMERICA	CLOUDS	4.9N	55.8W	60 LO	100 N H 890809	20:58:12	165 285 14 22
81	93	SOUTH AMERICA	CLOUDS		4.2N 55.4W	60 LO	100 N H 890809	20:58:25	165 285 13 22
81	94	SOUTH AMERICA	CLOUDS		3.3N 54.9W	60 HV	100 N Y 890809	20:58:42	165 285 12 22
81	95	SOUTH AMERICA	CLOUDS		2.9N 54.7W	60 HV	100 N Y 890809	20:58:48	165 285 12 22
81	96	SOUTH AMERICA	CLOUDS		2.5N 54.6W	60 HV	100 N Y 890809	20:58:54	165 285 11 22
81	97	BRAZIL	AMAZON RIVER	2.0S 54.5W	0.3S 52.6W	60 LO	100 N H 890809	20:59:44	165 286 9 22
81	98	BRAZIL	AMAZON RIVER	2.0S 53.5W	0.7S 52.6W	40 LO	100 N Y 890809	20:59:53	165 286 8 22
81	99	BRAZIL	AMAZON RIVER	1.5S 52.5W	1.2S 52.3W	40 HV	100 N Y 890809	21:00:02	165 286 8 22
81	100	BRAZIL	CLEARING, DEVELOPMENT		2.3S 51.7W	10	100 N H 890809	21:00:21	165 286 7 22
81	101	JAPAN	HOKKAIDO	42.0N 141.0E	39.4N 144.7E	50 LO	100 N H 890809	21:57:20	161 92 27 23
81	102	JAPAN	HOKKAIDO	41.5N 140.5E	40.0N 145.1E	60 LO	100 N H 890809	21:57:27	161 92 28 23
81	103	JAPAN	HOKKAIDO	42.5N 140.5E	40.5N 145.7E	50 LO	100 N H 890809	21:57:38	161 93 28 23
81	104	JAPAN	HOKKAIDO	43.0N 140.5E	40.9N 144.2E	60 LO	100 N H 890809	21:57:46	161 93 28 23
81	105	JAPAN	HOKKAIDO	43.5N 141.0E	41.1N 144.6E	70 LO	100 N H 890809	21:57:52	161 94 29 23
81	106	JAPAN	HOKKAIDO	44.0N 145.0E		80 LO	100 N H		
82	1		BLANK		1.9N 151.5W		890809	15:43:19	162 74 -6 19
82	2	USA-CA	SACRAMENTO VALLEY	39.5N 122.5W	37.0N 126.4W	5 LO	250 N N 890809	15:54:12	161 80 26 19
82	3	USA-CA	SACRAMENTO VALLEY	40.0N 122.0W	37.4N 125.9W	40 LO	250 N H 890809	15:54:21	161 80 26 19
82	4	USA-OR	LAKE ABERT	42.5N 120.0W	40.1N 122.9W	40 LO	250 N H 890809	15:55:17	161 93 29 19
82	5	USA-OR	ALVORD DESERT	42.5N 118.5W	41.0N 121.6W	10 LO	250 N Y 890809	15:55:30	161 95 30 19
82	6	USA-OR	MOUNTAINS, LAVA	43.0N 118.5W	41.6N 121.0W	5 LO	250 N Y 890809	15:55:49	161 95 30 19
82	7	USA-ID	SNAKE RIVER	44.5N 117.0W	42.5N 119.4W	30 LO	250 N H 890809	15:56:11	161 97 31 19
82	8	USA-ID	SNAKE RIVER	45.0N 116.5W	43.1N 118.0W	00 LO	250 N H 890809	15:56:24	161 98 32 19
82	9	USA-ID	SNAKE RIVER	45.5N 116.5W	43.4N 118.4W	00 LO	250 N H 890809	15:56:31	161 99 32 19
82	10	USA-ID	SNAKE RIVER	46.0N 116.0W	43.8N 117.8W	70 LO	250 N H 890809	15:56:39	161 99 32 19
82	11	USA	CLOUDS, MOUNTAINS		45.3N 115.5W	80	250 N H 890809	15:57:15	161 102 34 19
82	12	CANADA-S	SOUTH SASKATCHEWAN RIVER	51.5N 110.0W	48.5N 110.2W	80 LO	250 N H 890809	15:58:28	161 109 37 19
82	13	CANADA-S	REGINA	50.5N 104.5W	49.2N 108.2W	30 LO	250 N H 890809	15:58:53	162 112 38 19
82	14	CANADA-S	BIG QUILL LAKE	52.0N 104.0W	49.5N 107.6W	0 LO	250 N H 890809	15:59:01	162 112 38 19
82	15	CANADA-A	AGRICULTURE, LAKES, CLOUDS	52.0N 110.5W	50.2N 105.8W	80 LO	250 N H 890809	15:59:21	162 115 39 19
82	16	USA-HI	MAUI, MOLOKAI, LANAI	21.0N 156.5W	18.8N 164.3W	50 LO	250 N H 890809	17:19:02	161 76 8 20
82	17	USA-HI	OAHU, MOLOKAI, LANAI	21.5N 158.0W	19.7N 163.7W	40 LO	250 N H 890809	17:19:19	161 77 10 20
82	18	USA-HI	OAHU, MOLOKAI, LANAI	21.5N 158.0W	20.7N 163.1W	50 LO	250 N H 890809	17:19:37	161 77 10 20
82	19	USA-HI	OAHU, MOLOKAI, LANAI	21.5N 158.0W	21.5N 162.5W	60 LO	250 N H 890809	17:19:51	161 77 11 20
82	20	USA-HI	OAHU, MOLOKAI, LANAI	21.5N 158.0W	23.5N 161.1W	30 LO	250 N H 890809	17:20:28	161 78 13 20
82	21	USA-HI	OAHU, MOLOKAI, LANAI	21.5N 158.0W	24.4N 160.5W	30 LO	250 N H 890809	17:20:45	161 79 14 20
82	22	CANADA-BC	SCOTT ISLANDS	51.0N 128.5W	49.4N 130.0W	50 LO	250 N H 890809	17:29:35	162 112 38 20
82	23	CANADA-BC	SCOTT ISLANDS	50.5N 128.5W	49.7N 130.1W	40 HV	250 N H 890809	17:29:45	162 113 38 20
82	24	CANADA-BC	VANCOUVER ISLAND	49.5N 126.5W	50.1N 129.3W	20 LO	250 N H 890809	17:29:55	162 114 38 20
82	25	CANADA-BC	QUEEN CHARLOTTE STRAIT	51.0N 127.0W	50.0N 127.1W	50 HV	250 N H 890809	17:30:07	161 117 39 20
82	26	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	51.3N 126.2W	20 HV	250 N Y 890809	17:30:18	161 118 40 20
82	27	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	51.4N 125.5W	20 HV	250 N Y 890809	17:30:26	161 119 40 20
82	28	CANADA-BC	COAST MOUNTAINS	51.0N 122.5W	52.1N 124.0W	60 HV	250 N H 890809	17:30:43	161 121 41 20
82	29	CANADA-BC	FRASER RIVER	52.5N 122.0W	52.9N 121.5W	20 HV	250 N H 890809	17:31:10	161 124 41 20
82	30	CANADA-A	LESSER SLAVE LAKE	55.5N 115.0W	54.4N 116.0W	40 LO	250 N H 890809	17:32:04	161 132 43 20
82	31	CANADA-A	LESSER SLAVE LAKE	55.5N 115.0W	54.6N 115.1W	30 HV	250 N H 890809	17:32:15	161 133 43 20
82	32	CANADA-A	ATHABASCA RIVER	57.0N 111.5W	55.4N 111.4W	5 HV	250 N H 890809	17:32:50	161 138 44 20
82	33	CANADA-S	SMOOTHSTONE LAKE	55.0N 107.0W	54.0N 107.7W	0 HV	250 N H 890809	17:33:24	161 144 45 20
82	34	CANADA-S	LAC LA RONGE	55.0N 105.0W	56.2N 104.4W	5 NV	250 N H 890809	17:33:56	161 145 46 20
82	35	CANADA-N	GRANDE LAKE	49.0N 57.5W	51.4N 56.6W	30 LO	250 N H 890809	17:41:14	162 222 48 20
82	36	CANADA-N	GRANDE LAKE	49.0N 57.5W	51.2N 56.0W	20 LO	250 N H 890809	17:41:20	162 223 48 20
82	37	CANADA-N	ST. GEORGE'S BAY	48.5N 58.5W	50.7N 54.9W	20 LO	250 N H 890809	17:41:33	162 224 48 20
82	38	CANADA-N	CABOT STRAIT	48.0N 59.0W	50.7N 54.7W	10 LO	250 N H 890809	17:41:55	162 225 48 20
82	39	CANADA-N	CAPE BRETON ISLAND	46.5N 60.5W	50.6N 54.5W	5 LO	250 N H 890809	17:41:58	162 225 48 20
82	40	USA-AK	BARANOF ISLAND	54.5N 135.0W		5 LO	250 N H		
82	41	USA-AK	KUIU ISLAND	56.0N 134.0W	55.9N 131.3W	20 LO	250 N H 890809	18:03:50	161 142 45 21

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	CR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FL	E	S	DATE	GMT	SUN AL	AZ	EL	OR
82	42	USA-AK	PRINCE OF WALES ISLAND	56.0N	133.5W	56.0N	130.4W	60	LO	250	N	N	890809	19:03:35	161	143	45	21
82	43	USA-AK	STEPHENS PASSAGE	58.0N	134.0W	56.3N	128.7W	20	LO	250	N	N	890809	19:04:16	161	146	46	21
82	44	CANADA-BC	COAST MOUNTAINS	58.5N	133.5W	56.4N	127.6W	40	LO	250	N	N	890809	19:04:23	161	147	46	21
82	45	CANADA-BC	COAST MOUNTAINS	59.0N	133.5W	56.5N	126.7W	40	LO	250	N	N	890809	19:04:31	161	149	46	21
82	46	CANADA-A	ZANA LAKE	58.5N	119.0W	57.1N	117.1W	5	LO	250	N	N	890809	19:05:34	161	163	48	21
82	47	CANADA-A	CHINCHAGA RIVER	58.5N	118.0W	57.1N	116.4W	5	LO	250	N	N	890809	19:06:00	161	164	48	21
82	48	CANADA-A	PEACE RIVER	58.5N	116.0W	57.2N	115.8W	5	NV	250	N	N	890809	19:06:12	162	166	48	21
82	49	CANADA-Q	ST. LAWRENCE RIVER	47.0N	71.0W	45.6N	67.5W	70	LO	250	N	N	890809	19:14:20	163	241	45	21
82	50	CANADA-NB	CHIGNECTO BAY	46.0N	64.5W	42.4N	62.8W	10	LO	250	N	N	890809	19:15:32	163	249	43	21
82	51	CANADA-PEI	NORTHUMBERLAND STRAIT	46.5N	64.0W	42.2N	62.5W	5	LO	250	N	N	890809	19:15:37	163	250	43	21
82	52	CANADA-PEI	GULF OF ST. LAWRENCE	47.0N	64.5W	42.0N	62.2W	10	LO	250	N	N	890809	19:15:42	163	250	43	21
82	53	CANADA-NS	HALIFAX	45.0N	63.5W	41.0N	61.9W	0	LO	250	N	N	890809	19:15:47	163	251	43	21
82	54	CANADA-NS	HALIFAX	44.5N	64.5W	41.6N	61.7W	5	LO	250	N	N	890809	19:15:50	163	251	43	21
82	55	CANADA-NS	HALIFAX	45.5N	64.0W	41.1N	61.0W	5	LO	250	N	N	890809	19:16:42	163	252	43	21
82	56	CANADA-NS	NOVA SCOTIA	45.5N	64.0W	41.1N	61.0W	5	LO	250	N	N	890809	19:16:42	163	256	41	21
82	57	PACIFIC OCEAN	SHIP			40.3N	168.5E	5		250	N	N	890809	20:26:30	161	93	28	22
82	58	PACIFIC OCEAN	CLOUDS			40.8N	169.1E	70		250	N	N	890809	20:27:00	161	94	29	22
82	59	CANADA-S	AGRICULTURE, YORKTON	51.5N	102.5W	51.1N	101.8W	5	NV	250	N	N	890809	20:42:25	162	222	48	22
82	60	USA-ND	AGRICULTURE, CAN. BORDER	49.0N	100.0W	49.8N	98.7W	5	NV	250	N	N	890809	20:43:02	163	227	48	22
82	61	CANADA-M	BRANDON, ASSINBOINE R.	50.0N	99.5W	49.5N	98.1W	40	NV	250	N	N	890809	20:43:10	163	228	48	22
82	62	CANADA-M	LAKE MANITOBA	50.0N	98.5W	48.7N	96.3W	10	LO	250	N	N	890809	20:43:32	163	231	47	22
82	63	USA-MI	LAKE SUPERIOR	47.0N	88.5W	45.8N	90.3W	30	LO	250	N	N	890809	20:44:46	163	240	46	22
82	64	USA-WI	MADISON	43.0N	89.5W	44.5N	88.2W	80	NV	250	N	N	890809	20:45:16	163	244	45	22
82	65	USA-MI	LAKE MICHIGAN	44.5N	86.0W	43.6N	87.0W	80	NV	250	N	N	890809	20:45:37	163	246	44	22
82	66	USA-MI	LAKE MICHIGAN	45.5N	85.5W	43.2N	86.0W	70	LO	250	N	N	890809	20:45:46	163	247	44	22
82	67	USA-MI	LAKE MICHIGAN	45.0N	85.5W	43.1N	86.7W	80	LO	250	N	N	890809	20:45:48	163	247	44	22
82	68	USA-MI	LAKE MICHIGAN	43.0N	86.0W	42.7N	84.2W	60	NV	250	N	Y	890809	20:45:57	163	248	44	22
82	69	USA-MI	LAKE MICHIGAN	43.5N	86.0W	42.6N	84.1W	60	NV	250	N	Y	890809	20:45:59	163	248	44	22
82	70	USA-MI	LAKE MICHIGAN	43.5N	86.0W	42.5N	85.9W	60	NV	250	N	Y	890809	20:46:02	163	249	44	22
82	71	USA-MI	LAKE MICHIGAN	44.0N	86.0W	42.4N	85.7W	20	NV	250	N	Y	890809	20:46:04	163	249	44	22
82	72	USA-MI	LAKE MICHIGAN	43.0N	86.0W	42.6N	85.2W	80	NV	250	N	Y	890809	20:46:13	163	250	43	22
82	73	USA-IN	FORT WAYNE	41.0N	85.0W	41.7N	84.8W	40	NV	250	N	Y	890809	20:46:20	163	250	43	22
82	74	USA-IN	FORT WAYNE	41.0N	85.0W	41.5N	84.5W	20	NV	250	N	Y	890809	20:46:24	163	251	43	22
82	75	USA-IN	FORT WAYNE	41.0N	85.5W	40.8N	83.8W	20	NV	250	N	Y	890809	20:46:37	163	252	43	22
82	76	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N	79.0W	38.3N	80.6W	60	LO	250	N	N	890809	20:47:33	163	257	41	22
82	77	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N	79.0W	38.1N	80.4W	60	LO	250	N	N	890809	20:47:36	163	257	41	22
82	78	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N	79.0W	38.0N	80.3W	60	LO	250	N	N	890809	20:47:38	163	257	41	22
82	79	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N	78.0W	37.9N	80.2W	70	LO	250	N	N	890809	20:47:41	164	258	41	22
82	80	USA-NY	LAKE ONTARIO, LAKE ERIE	43.0N	78.0W	37.8N	80.1W	60	LO	250	N	N	890809	20:47:43	164	258	41	22
82	81	USA-CT	LONG ISLAND	41.0N	73.5W	34.4N	76.6W	30	LO	250	N	N	890809	20:48:52	164	263	38	22
82	82	GUYANA	GEORGETOWN	7.0N	58.5W	7.7N	57.4W	10	NV	250	N	N	890809	20:57:10	165	284	16	22
82	83	GUYANA	BERBICE RIVER	6.5N	57.5W	7.3N	57.2W	5	NV	250	N	N	890809	20:57:17	165	284	16	22
82	84	SURINAM	COURANTYNE RIVER	6.9N	57.0W	6.9N	56.9W	10	NV	250	N	N	890809	20:57:25	165	284	15	22
82	85	GUYANA	ESSEQUIBO R., GEORGETOWN	7.0N	58.5W	5.7N	56.2W	30	LO	250	N	N	890809	20:57:47	165	285	14	22
82	86	GUYANA	ESSEQUIBO R., GEORGETOWN	6.5N	58.0W	5.4N	56.1W	20	LO	250	N	N	890809	20:57:51	165	285	14	22
82	87	GUYANA	BERBICE RIVER	6.0N	57.5W	4.7N	55.7W	10	LO	250	N	N	890809	20:58:04	165	285	13	22
82	88	SURINAM	COURANTYNE RIVER	6.0N	57.0W	4.5N	55.6W	30	NV	250	N	N	890809	20:58:08	165	285	13	22
82	89	SOUTH AMERICA	CLOUDS			3.0N	54.7W	80		250	N	N	890809	20:58:34	165	285	12	22
82	90	SOUTH AMERICA	CLOUDS			2.0N	54.1W	90		250	N	N	890809	20:58:53	165	286	11	22
82	91	SOUTH AMERICA	CLOUDS			1.4N	53.8W	70		250	N	N	890809	20:59:04	165	286	10	22
82	92	SOUTH AMERICA	CLOUDS			1.0N	53.6W	60		250	N	N	890809	20:59:11	165	286	10	22
82	93	BRAZIL	AMAZON RIVER	2.0S	54.0W	0.2N	53.1W	20	LO	250	N	N	890809	20:59:24	165	286	9	22
82	94	JAPAN	CLOUDS			33.4N	138.1E	90		N	N	N	890809	21:55:00	161	85	21	23
82	95	USSR-PACIFIC	KURIL ISLANDS	45.5N	149.5E	43.4N	149.4E	90	LO	100	N	N	890809	21:58:30	161	97	31	23
82	96	USSR-PACIFIC	KURIL ISLANDS	47.5N	152.5E	47.8N	157.0E	90	LO	100	N	N	890809	22:00:16	161	107	35	23
82	97	PACIFIC OCEAN	CLOUDS			52.1N	167.1E	90	HO	100	N	N	890809	22:02:10	161	120	40	23
82	98	PACIFIC OCEAN	CLOUDS			52.5N	160.4E	90	HO	100	N	N	890809	22:02:32	161	122	40	23
82	99	CANADA-BC	ST. ELIAS MOUNTAINS	59.5N	135.0W	54.7N	137.1W	50	HO	100	N	N	890809	22:10:42	162	202	50	23
82	100	USA-AK	BRADY GLACIER	58.0N	136.0W	54.7N	136.7W	40	LO	100	N	N	890809	22:10:51	162	202	50	23
82	101	USA-AK	BARANOF ISLAND	57.5N	135.0W	54.6N	136.4W	30	LO	100	N	N	890809	22:10:54	162	202	50	23
82	102	USA-AK	BARANOF ISLAND	57.0N	134.0W	53.9N	133.5W	40	LO	100	N	N	890809	22:11:23	162	207	49	23
82	103	CANADA-BC	KAMLOOPS, THOMPSON RIVER	50.5N	120.0W	51.5N	125.3W	80	LO	100	N	N	890809	22:12:46	162	220	49	23
83	1	USA-MI	LAKE MICHIGAN	45.0N	85.5W	46.3N	83.3W	10	LO	100	U	N	890811	13:13:20	161	96	27	49
83	2	USA-MI	LAKE HURON	45.5N	84.0W	46.5N	83.0W	10	NV	100	U	N	890811	13:13:25	161	97	27	49
83	3	USA-MI	LAKE HURON	45.0N	83.5W	46.7N	82.7W	5	NV	100	U	N	890811	13:13:29	161	97	28	49
83	4	CANADA	UNDEREXPOSED-FIRES.SMOKE			47.3N	81.4W	30		100	N	N	890811	13:13:45	161	98	28	49
83	5	CANADA	UNDEREXPOSED			47.0N	80.5W	10		100	U	N	890811	13:13:59	161	100	29	49
83	6	IRELAND	SOUTHWESTERN COASTLINE	53.0N	9.0W	53.8N	10.3W	80	LO	100	N	N	890811	13:25:07	162	184	51	49
83	7	BR																



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
83	9	CANADA-M	DAUPHIN LAKE	51.0N	99.0W	51.2N	96.0W	20	LO	100	U	N	890811	14:46:03	161	108	33	50
83	10	CANADA-M	LAKE MANITOBA	51.0N	99.0W	51.3N	95.7W	10	LO	100	U	N	890811	14:46:06	161	108	33	50
83	11	CANADA-M	LAKE MANITOBA	50.5N	98.5W	51.4N	95.5W	10	LO	100	U	N	890811	14:46:08	161	108	33	50
83	12	CANADA-M	WINNIPEG	50.0N	97.0W	51.5N	95.1W	10	LO	100	U	N	890811	14:46:13	161	109	33	50
83	13	CANADA-M	LAKE WINNIPEG	51.0N	97.0W	51.6N	94.9W	5	LO	100	U	N	890811	14:46:15	161	109	34	50
83	14	CANADA-M	LAKE WINNIPEG	51.5N	97.0W	51.7N	94.7W	5	LO	100	U	N	890811	14:46:18	161	109	34	50
83	15	CANADA-M	LAKE WINNIPEG	52.5N	97.5W	51.8N	94.3W	10	LO	100	U	N	890811	14:46:22	161	110	34	50
83	16	CANADA-O	WINISK RIVER	55.0N	85.5W	54.4N	85.5W	5	NV	100	U	Y	890811	14:47:54	161	121	38	50
83	17	CANADA-O	WINISK RIVER	55.0N	86.5W	54.5N	85.2W	0	NV	100	U	Y	890811	14:47:57	161	121	38	50
83	18	CANADA-O	WINISK RIVER	54.0N	86.5W	54.5N	84.9W	5	NV	100	U	Y	890811	14:48:00	161	121	38	50
83	19	CANADA-O	SUTTON LAKE	54.5N	84.5W	54.7N	84.3W	10	NV	100	U	Y	890811	14:48:06	161	122	38	50
83	20	CANADA-O	HUDSON BAY	54.5N	83.5W	54.8N	83.7W	30	NV	100	U	Y	890811	14:48:12	161	123	38	50
83	21	SPAIN	STRAIT OF GIBRALTAR	37.0N	6.0W	39.5N	5.5W	5	LO	100	N	N	890811	15:01:53	163	245	48	50
83	22	CHAD	LAKE CHAD	13.0N	15.0E	12.9N	15.0E	70	NV	100	U	N	890811	15:10:22	165	200	30	50
83	23	CHAD	LAKE CHAD	13.0N	15.0E	12.1N	16.4E	70	NV	100	N	N	890811	15:10:36	165	201	29	50
83	24	CHAD	LAKE CHAD	13.0N	15.0E	11.7N	16.7E	70	LO	100	N	N	890811	15:10:43	165	201	29	50
83	25	AFRICA	CLOUDS			5.3N	20.4E	80	LO	100	N	N	890811	15:12:30	165	204	25	50
83	26	CANADA-BC	KAMLOOPS, THOMPSON RIVER	50.5N	120.0W	51.1N	119.1W	5	NV	100	N	N	890811	16:16:32	161	107	33	51
83	27	CANADA-BC	COLUMBIA RIVER	51.5N	117.5W	51.8N	117.2W	5	NV	100	N	Y	890811	16:16:54	161	110	34	51
83	28	CANADA-BC	COLUMBIA RIVER	51.5N	116.5W	52.0N	116.7W	20	NV	100	N	Y	890811	16:17:00	161	110	34	51
83	29	ATLANTIC OCEAN	CLOUDS			50.8N	47.7W	30	LO	100	N	N	890811	16:27:49	162	209	52	51
83	30	CLOUDS	CLOUDS, ORBITER TAIL					100	HO	100	N	N						
83	31	CLOUDS	CLOUDS, ORBITER TAIL					100	HO	100	N	N						
83	32	USA-AK	COAST MOUNTAINS, ISLANDS	56.0N	131.5W	56.9N	137.8W	40	LO	100	N	N	890811	19:21:59	161	141	43	53
83	33	USA-AK	REVILLAGIGEDO ISLAND	55.5N	132.0W	57.0N	135.7W	40	LO	100	N	N	890811	19:22:17	161	143	44	53
83	34	USA-AK	REVILLAGIGEDO ISLAND	55.5N	132.0W	57.1N	135.2W	50	NV	100	N	N	890811	19:22:39	161	147	44	53
83	35	CANADA-A	PEACE RIVER	56.5N	118.5W	56.7N	119.7W	40	NV	100	N	Y	890811	19:24:34	161	166	48	53
83	36	CANADA-A	PEACE RIVER	56.5N	117.5W	56.5N	117.9W	40	NV	100	N	Y	890811	19:24:50	161	168	48	53
83	37	CANADA-A	ATHABASCA RIVER	56.5N	113.5W	56.1N	114.5W	30	NV	100	N	Y	890811	19:25:20	162	173	49	53
83	38	CANADA-A	ATHABASCA RIVER	57.0N	111.5W	55.8N	112.5W	30	NV	100	N	Y	890811	19:25:40	162	177	49	53
83	39	CANADA-A	ATHABASCA RIVER	56.0N	111.0W	55.6N	111.0W	20	NV	100	N	Y	890811	19:25:52	162	179	50	53
83	40	CANADA-S	PETER POND LAKE	56.0N	109.0W	55.2N	108.7W	60	NV	100	N	N	890811	19:26:14	162	182	50	53
83	41	CANADA-S	DORE LAKE	55.0N	107.0W	54.8N	107.0W	80	NV	100	N	N	890811	19:26:30	162	185	50	53
83	42	CANADA-S	SASKATCHEWAN RIVER	53.0N	106.0W	54.4N	105.1W	10	NV	100	N	N	890811	19:26:49	162	188	51	53
83	43	CANADA-S	SASKATCHEWAN RIVER	53.0N	103.5W	54.0N	103.5W	30	NV	100	N	N	890811	19:27:06	162	191	51	53
83	44	CANADA-M	LAKE WINNIPEG	53.0N	99.5W	52.9N	99.6W	40	NV	100	N	N	890811	19:27:47	162	198	51	53
83	45	USA-MI	LAKE MICHIGAN	44.0N	86.5W	47.6N	86.5W	60	LO	100	N	N	890811	19:30:20	163	221	52	53
83	46	USA-MI	LAKE MICHIGAN	44.0N	86.5W	47.1N	85.6W	50	LO	100	N	N	890811	19:30:32	163	222	52	53
83	47	USA-MI	LAKE MICHIGAN	44.0N	86.5W	46.1N	83.8W	80	LO	100	N	N	890811	19:30:57	163	226	51	53
83	48	USA-MI	BAY CITY, SAGINAW	43.5N	83.5W	45.6N	83.0W	60	LO	100	N	N	890811	19:31:09	163	228	51	53
83	49	ATLANTIC OCEAN	CLOUDS			32.7N	67.4W	80	LO	100	N	N	890811	19:35:45	164	258	45	53
83	50	ATLANTIC OCEAN	CLOUDS			30.6N	65.5W	70	LO	100	N	N	890811	19:36:26	164	261	44	53
83	51	ATLANTIC OCEAN	CLOUDS			29.7N	64.0W	70	LO	100	N	N	890811	19:36:42	164	263	44	53
83	52	ATLANTIC OCEAN	CLOUDS			29.0N	64.2W	70	LO	100	N	N	890811	19:36:57	164	264	43	53
83	53	ATLANTIC OCEAN	CLOUDS			28.1N	63.4W	80	LO	100	N	N	890811	19:37:14	164	265	42	53
83	54	ATLANTIC OCEAN	CLOUDS			15.3N	54.5W	70	LO	100	N	N	890811	19:41:12	165	278	33	53
83	55	USA-AK	ALEUTIAN ISLANDS	52.5N	170.5E	53.2N	170.1E	30	NV	100	U	N	890811	20:49:13	161	114	35	54
83	56	BERING SEA	COLOR VARIATION			55.1N	173.9W	5		100	N	N	890811	20:50:32	161	124	38	54
83	57	USA-AK	BARANOF ISLAND	57.0N	135.0W	55.9N	135.5W	20	NV	100	N	N	890811	20:56:09	162	176	49	54
83	58	USA-WA	COLUMBIA RIVER	48.5N	117.5W	50.5N	115.7W	20	LO	100	N	N	890811	20:58:33	162	209	52	54
83	59	USA	CLOUDS			45.3N	105.4W	80		100	N	N	890811	21:01:48	163	220	51	54
83	60	USA-NE	GRAND ISLAND, HASTINGS	40.5N	91.5W	41.8N	100.4W	70	NV	100	N	N	890811	21:03:06	163	238	50	54
83	61	USA-OK	TULSA, KEYSTONE LAKE	36.0N	96.5W	36.6N	94.2W	70	LO	100	N	N	890811	21:04:57	164	250	48	54
83	62	USA-OK	TULSA, KEYSTONE LAKE	36.0N	96.0W	36.4N	94.0W	70	LO	100	N	N	890811	21:05:01	164	251	48	54
83	63	USA-LA	NEW ORLEANS	30.0N	90.0W	32.0N	89.8W	80	LO	100	N	N	890811	21:06:29	164	259	45	54
83	64	USA-LA	NEW ORLEANS	30.0N	90.0W	31.9N	89.7W	70	NV	100	N	N	890811	21:06:31	164	259	45	54
83	65	USA-LA	NEW ORLEANS	30.0N	90.0W	31.7N	89.5W	70	NV	100	N	N	890811	21:06:34	164	259	45	54
83	66	USA-AL	MOBILE BAY	30.5N	88.0W	31.2N	89.0W	70	NV	100	N	N	890811	21:06:45	164	260	45	54
83	67	USA-AL	MOBILE BAY	30.5N	88.0W	31.0N	88.3W	80	NV	100	N	N	890811	21:06:49	164	261	45	54
83	68	USA-AL	MOBILE BAY	30.5N	88.0W	30.8N	88.7W	80	NV	100	N	N	890811	21:06:52	164	261	45	54
83	69	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N	160.5E	56.6N	172.8E	60	HO	100	N	N	890811	22:22:31	161	135	42	55
83	70	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N	163.0E	56.6N	173.0E	50	HO	100	N	N	890811	22:22:33	161	136	42	55
83	71	USSR-PACIFIC	KAMCHATKA PENINSULA	60.0N	165.5E	56.6N	173.2E	60	HO	100	N	N	890811	22:22:35	161	136	42	55
83	72	USSR-PACIFIC	OLYUTORSKIY GULF	61.0N	170.0E	56.7N	173.8E	50	HO	100	N	N	890811	22:22:40	161	137	42	55
83	73	USSR-PACIFIC	OLYUTORSKIY GULF	60.5N	167.0E	56.7N	174.0E	60	HO	100	N	N	890811	22:22:42	161	137	42	55
83	74	USSR-PACIFIC	KAMCHATKA PENINSULA	59.0N	165.0E	56.7N	174.2E	60	HO	100	N	N	890811	22:22:44	161	137	42	55
83	75	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N	164.0E	56.7N	174.5E	60	HO	100	N	N	890811	22:22:46	161	138	42	55
83	76	USSR-PACIFIC	KAMCHATKA PENINSULA	57.5N	163.5E	56.8N	174.7E	70	HO	100	N	N	890811	22:22:48	161	138	42	55
83	77	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N	164.0E	56.8N	174.9E	80	HO	100	N	N	890811	22:22:50	161	138	42	55
83	78	USSR-MIDDLE	OB RIVER, NOVOSIBIRSK	56.0N	83.0E	56.3N	83.2E	60	NV	100	N	N	890812	05:58:43	161	168	48	60

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LONG.	NADIR LAT. LONG.	CC	TL	FL	E	S	DATE	GMT	BUN AL AZ EL OR
83	79	CHINA	LAOHA & XAR MORON RIVERS	43.5N 129.0E	45.3N 116.7E	18	LO	100	N	N	890812	06:54:52	163 225 52 60
83	80	CHINA	LAOHA & XAR MORON RIVERS	43.0N 129.0E	44.5N 117.9E	20	LO	100	N	N	890812	06:55:10	163 228 52 60
83	81	JAPAN	KYUSHU	32.5N 130.5E	34.7N 129.8E	60	LO	100	N	N	890812	06:58:40	164 252 40 60
83	82	JAPAN	HONSHU, SHIKOKU	34.5N 134.5E	33.0N 130.6E	50	LO	100	N	N	890812	06:58:55	164 254 48 60
83	83	JAPAN	HONSHU, SHIKOKU	34.0N 133.0E	32.7N 131.7E	40	LO	100	N	N	890812	06:59:20	164 254 47 60
83	84	JAPAN	OSUMI ISLANDS, SUNGLINT	29.5N 131.5E	30.5N 133.7E	40	LO	100	N	N	890812	06:10:33	164 260 46 60
83	85	SPAIN	PORTUGAL BORDER	41.5N 6.0W	40.7N 7.3W	5	NV	100	N	N	890812	07:17:24	160 85 18 61
83	86	EUROPE	CLOUDS		52.1N 13.8E	60		100	H	H	890812	07:22:11	160 100 32 61
83	87	POLAND	GDANSK, GULF OF DANZIG	55.0N 19.0E	53.4N 17.8E	90	NV	100	N	N	890812	07:22:54	160 112 34 61
83	88	USSR	CLOUDS		56.5N 58.8E	70	LO	100	N	N	890812	07:23:01	161 165 48 61
83	89	USSR-MIDDLE	FIRES, SMOKE		55.4N 66.3E	80	HO	100	N	N	890812	07:30:09	162 176 50 61
83	90	USSR-MIDDLE	CLOUDS		52.6N 77.6E	90		100	N	N	890812	07:32:02	162 185 52 61
83	91	CHINA	GOBI DESERT	43.5N 95.5E	46.0N 92.5E	20	LO	100	N	N	890812	07:35:05	163 222 53 61
83	92	CHINA	GOBI DESERT	42.5N 98.0E	45.8N 92.7E	20	HO	100	N	N	890812	07:35:09	163 223 53 61
83	93	CHINA	GOBI DESERT	41.5N 98.5E	44.4N 94.7E	20	HO	100	N	N	890812	07:35:36	163 227 52 61
83	94	CHINA	BADAIN JARAN DESERT	39.5N 102.5E	42.4N 98.0E	20	LO	100	N	N	890812	07:36:29	163 234 52 61
83	95	CHINA	BADAIN JARAN DESERT, MOON	39.0N 105.5E	42.2N 96.2E	40	HO	100	N	N	890812	07:36:32	163 234 52 61
83	96	CHINA	BADAIN JARAN DESERT, MOON	38.0N 107.0E	41.6N 99.1E	50	HO	100	N	N	890812	07:36:47	163 236 52 61
83	97	CHINA	LANZHOU	35.5N 103.5E	39.3N 101.9E	50	LO	100	N	N	890812	07:37:36	163 242 51 61
83	98	CHINA	YELLOW RIVER	40.0N 109.0E	38.6N 102.7E	40	HO	100	N	N	890812	07:37:51	163 243 51 61
83	99	CHINA	YELLOW RIVER	38.0N 106.5E	37.4N 104.0E	30	LO	100	N	N	890812	07:38:15	164 246 50 61
83	100	CHINA	YANGTZE RIVER	29.0N 113.0E	30.5N 110.7E	70	LO	100	N	N	890812	07:40:33	164 260 46 61
83	101	CHINA	YANGTZE RIVER	29.5N 116.0E	29.1N 111.9E	70	LO	100	N	N	890812	07:41:01	164 262 46 61
83	102	CHINA	FORMOSA STRAIT	25.5N 119.0E	25.2N 115.0E	60	LO	100	N	N	890812	07:42:15	165 267 43 61
83	103	CHINA	FORMOSA STRAIT	23.5N 117.5E	24.4N 115.5E	50	LO	100	N	N	890812	07:42:29	165 268 42 61
83	104	TAIWAN	FORMOSA STRAIT	23.0N 120.0E	23.3N 116.3E	70	LO	100	N	N	890812	07:42:50	165 270 42 61
84	0 A	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 134.5E		70	HO	100	N	N			
84	0 B	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 135.0E		70	HO	100	N	N			
84	0 C	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 135.0E		70	HO	100	N	N			
84	0 D	AUSTRALIA-NT	GULF OF CARPENTARIA	15.0S 136.5E		10	HO	100	N	N			
84	0 E	AUSTRALIA-Q	GULF OF CARPENTARIA	17.0S 139.5E		5	HO	100	N	N			
84	0 F	AUSTRALIA-Q	GULF OF CARPENTARIA	17.5S 140.0E		5	HO	100	N	N			
84	0 G	AUSTRALIA-Q	GULF OF CARPENTARIA	17.5S 140.0E		0	LO	100	N	N			
84	0 H	AUSTRALIA-Q	DIAMANTINA RIVER	22.0S 142.0E		0	NV	100	N	N			
84	0 J	CLOUDS	CLOUDS			80		100	N	N			
84	1	DENMARK	NORTHERN TIP	57.5N 10.5E	56.0N 7.6E	40	LO	100	N	N	890812	10:20:16	161 157 46 63
84	2	EUROPE	CLOUDS		54.4N 25.2E	40		100	N	N	890812	10:31:56	162 183 51 63
84	3	USSR-EUROPEAN	TSIMLYANSKOYE RESERVOIR	48.0N 43.0E	49.0N 40.0E	40	LO	100	N	N	890812	10:34:40	162 210 53 63
84	4	USSR-EUROPEAN	CASPIAN SEA	44.5N 51.5E	45.1N 48.0E	5	LO	100	N	N	890812	10:36:27	163 224 53 63
84	5	USSR-EUROPEAN	CASPIAN SEA	43.5N 51.5E	44.0N 48.5E	20	LO	100	N	N	890812	10:36:35	163 225 53 63
84	6	USSR-EUROPEAN	CASPIAN SEA	43.0N 52.5E	43.0N 50.0E	20	LO	100	N	N	890812	10:36:54	163 229 53 63
84	7	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E	43.2N 50.0E	20	LO	100	N	N	890812	10:37:12	163 230 53 63
84	8	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	42.5N 54.5E	42.0N 51.3E	10	LO	100	N	N	890812	10:37:18	163 231 52 63
84	9	USSR-EUROPEAN	CASPIAN SEA	40.0N 53.5E	42.2N 52.2E	5	LO	100	N	N	890812	10:37:33	163 233 52 63
84	10	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	40.5N 55.0E	41.0N 52.6E	5	LO	100	N	N	890812	10:37:39	163 234 52 63
84	11	USSR-EUROPEAN	UZBOY RIVER	39.5N 55.5E	41.0N 53.9E	20	LO	100	N	N	890812	10:38:00	163 234 52 63
84	12	USSR-EUROPEAN	ARAL SEA	42.5N 59.5E	40.2N 54.8E	40	HO	100	N	N	890812	10:38:16	163 238 52 63
84	13	USSR-MIDDLE	AMU RIVER	40.0N 61.0E	39.2N 56.0E	5	LO	100	N	N	890812	10:38:38	163 241 51 63
84	14	USSR-MIDDLE	IRAN BORDER	38.5N 60.5E	38.5N 56.0E	20	LO	100	N	N	890812	10:38:54	163 243 51 63
84	15	IRAN	USSR BORDER	36.0N 60.0E	37.3N 58.2E	10	LO	100	N	N	890812	10:39:18	164 246 51 63
84	16	USSR-MIDDLE	MURGAB RIVER	37.0N 61.0E	36.0N 58.6E	5	LO	100	N	N	890812	10:39:26	164 247 50 63
84	17	AFGHANISTAN	MOUNTAINS	33.0N 63.0E	35.0N 60.5E	5	LO	100	N	N	890812	10:40:04	164 251 50 63
84	18	AFGHANISTAN	MOUNTAINS	33.5N 64.0E	34.7N 60.8E	5	LO	100	N	N	890812	10:40:10	164 251 49 63
84	19	AFGHANISTAN	MOUNTAINS	34.5N 67.5E	34.5N 61.0E	40	HO	100	N	N	890812	10:40:14	164 252 49 63
84	20	PAKISTAN	INDUS RIVER	27.0N 68.0E	29.3N 65.8E	10	LO	100	N	N	890812	10:41:57	164 261 46 63
84	21	PAKISTAN	INDUS RIVER	28.0N 69.0E	28.9N 66.1E	5	LO	100	N	N	890812	10:42:05	164 262 46 63
84	22	INDIA	MOUTHS OF THE INDUS	23.0N 69.0E	26.1N 68.3E	70	LO	100	N	N	890812	10:42:58	164 266 44 63
84	23	BRITAIN	SCOTLAND	57.5N 3.0W	55.6N 3.5W	80	LO	100	N	N	890812	12:01:32	162 174 49 64
84	24	BRITAIN	SCOTLAND	56.0N 3.0W	55.5N 3.0W	80	NV	100	N	N	890812	12:01:37	162 174 50 64
84	25	BRITAIN	SCOTLAND	54.5N 3.5W	55.4N 2.4W	70	NV	100	N	N	890812	12:01:42	162 175 50 64
84	26	BRITAIN	NORTHERN ENGLAND	54.0N 1.0W	55.0N 0.6W	80	NV	100	N	N	890812	12:01:50	162 178 50 64
84	27	YUGOSLAVIA	ITALY, CORSICA, SARDINIA	45.0N 14.0E	49.2N 17.5E	70	HO	100	N	N	890812	12:05:15	162 209 53 64
84	28	TURKEY	DARDANELLES	40.5N 27.0E	43.4N 27.5E	50	LO	100	N	N	890812	12:07:36	163 229 53 64
84	29	TURKEY	BOSPORUS, MARMARA SEA	41.0N 29.0E	42.0N 28.5E	60	NV	100	N	N	890812	12:07:51	163 231 53 64
84	30	USA-MI	LAKE SUPERIOR	46.5N 87.5W	47.1N 89.5W	20	LO	100	N	N	890812	13:21:53	160 94 24 65
84	31	CANADA-O	LAKE MICHIGAN	50.0N 88.0W	48.4N 87.1W	10	NV	100	N	N	890812	13:22:26	160 97 26 65
84	32	CANADA-O	LONG LAKE	49.5N 87.0W	48.5N 86.0W	10	NV	100	N	N	890812	13:22:29	160 97 26 65
84	33	CANADA-O	ALBANY RIVER	51.0N 83.5W	50.3N 83.0W	10	NV	100	N	N	890812	13:23:17	160 101 28 65
84	34	CANADA-O	MISSISSAUGA RIVER	50.5N 82.5W	50.4N 82.7W	10	NV	100	N	N	890812	13:23:20	160 101 28 65
84	35	CANADA-O	MOOSE RIVER	50.5N 81.5W	50.5N 82.5W	10	NV	100	N	N	890812	13:23:23	160 102 28 65



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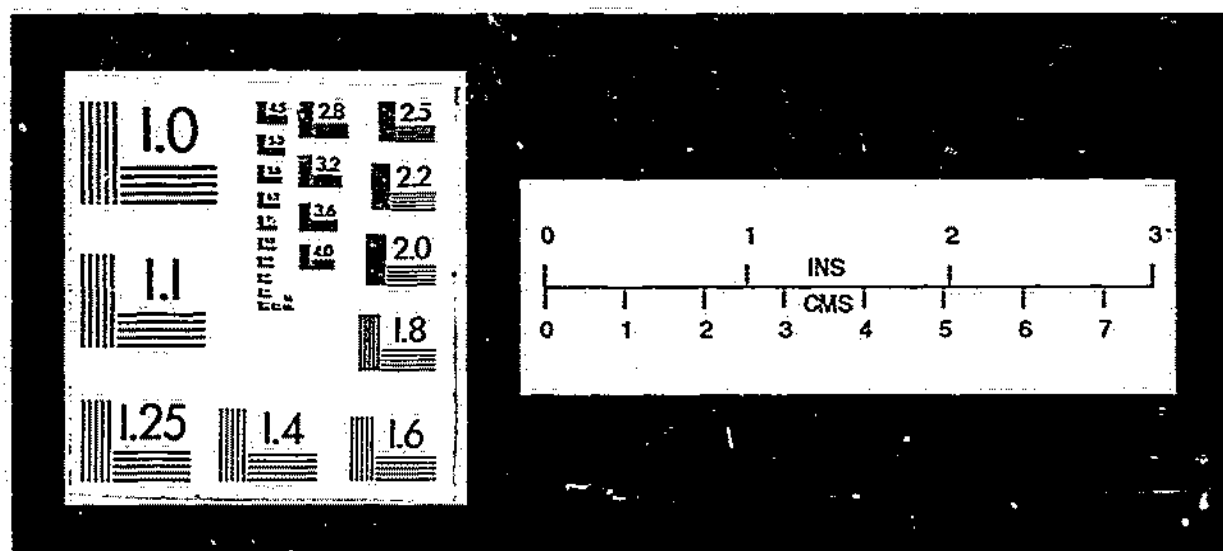
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TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
84	36	CANADA-Q	JAMES BAY, RUPERT BAY	51.5N 72.5W	50.8N 81.8W	28	LO	100	N	H	890612	13:23:31	160	182	29	65
84	37	CANADA-HT	AKOMESIO ISLAND	52.5N 80.8W	50.8N 81.8W	28	NY	100	N	Y	890612	13:23:35	160	183	29	65
84	38	CANADA-HT	AKOMESIO ISLAND	52.5N 81.8W	51.8N 81.1W	28	NY	100	N	Y	890612	13:23:39	160	183	29	65
84	39	CANADA-HT	AKOMESIO ISLAND	53.0N 79.5W	51.2N 86.7W	28	NY	100	N	Y	890612	13:23:43	160	183	29	65
84	40	CANADA-Q	FIRES, SMOKE	53.0N 76.5W	52.0N 78.5W	28	LO	100	N	H	890612	13:24:00	160	186	31	65
84	41	CANADA-Q	LA GRANDE RIVIERE	53.5N 73.8W	53.1N 75.8W	18	LO	100	N	H	890612	13:24:04	160	118	33	65
84	42	CANADA-Q	RIVIERE EASTMAN	52.5N 71.8W	54.0N 71.9W	28	NY	100	N	H	890612	13:25:18	161	114	34	65
84	43	CANADA-H	LAKE MELVILLE	53.5N 68.8W	56.2N 68.5W	68	LO	100	N	H	890612	13:27:06	161	127	29	65
84	44	USA-NV	BLACK ROCK DESERT	41.0N 118.8W	43.5N 118.8W	28	LO	100	N	H	890612	14:54:58	160	88	20	66
84	45	USA-MT	IDAHO BORDER	43.5N 113.8W	43.0N 116.2W	18	LO	100	N	H	890612	14:51:32	160	90	21	66
84	46	USA-MT	FLATHEAD LAKE, MOUNTAINS	47.5N 114.8W	46.0N 113.9W	18	NY	100	N	H	890612	14:52:05	160	82	23	66
84	47	USA-AK	ALEUTIAN ISLANDS, ATKA	52.0N 173.6W	51.8N 171.9W	98	LO	100	N	H	890612	18:26:03	160	184	30	69
84	48	USA-AK	ALEUTIAN ISLANDS	52.5N 178.0W	52.0N 178.4W	88	NY	100	N	H	890612	18:26:09	160	185	30	69
84	49	USA-AK	ALEUTIAN ISLANDS, UMNIAK	53.0N 168.5W	52.6N 168.7W	78	NY	100	N	H	890612	18:26:28	160	187	31	69
84	50	USA-AK	ALEUTIAN ISLANDS	52.0N 173.8W	54.0N 163.7W	98	HO	100	N	H	890612	18:27:28	160	112	33	69
84	51	USA-AK	SHELKOF STRAIT	54.0N 154.5W	55.7N 155.3W	68	LO	100	N	H	890612	18:28:00	161	122	37	69
84	52	USA-AK	CHIGACH MOUNTAINS	64.0N 147.8W	56.0N 145.9W	78	LO	100	N	H	890612	18:30:04	161	134	41	69
84	53	CANADA-A	EDMONTON	53.5N 113.5W	54.5N 113.8W	28	NY	100	N	H	890612	18:31:53	162	178	51	69
84	54	CANADA-M	WINNIPEG	50.0N 97.8W	49.8N 98.3W	28	NY	100	N	H	890612	18:37:36	162	205	53	69
84	55	USA-ME	LOWER PENINSULA	44.5N 85.5W	45.0N 88.7W	58	LO	100	N	H	890612	18:38:32	163	222	54	69
84	56	USA-ME	LOWER PENINSULA	43.5N 85.8W	44.6N 89.1W	68	LO	100	N	H	890612	18:38:40	163	223	54	69
84	57	USA-ME	LAKE MICHIGAN, CHICAGO	42.0N 86.5W	43.2N 86.9W	58	NY	100	N	H	890612	18:40:14	163	227	54	69
84	58	USA-ME	LAKE MICHIGAN, CHICAGO	42.0N 86.5W	42.8N 86.5W	58	NY	100	N	Y	890612	18:40:28	163	228	54	69
84	59	USA-ME	LAKE MICHIGAN	42.5N 86.8W	42.8N 86.4W	48	NY	100	N	Y	890612	18:40:23	163	229	54	69
84	60	USA-ME	LAKE MICHIGAN	43.0N 86.8W	42.8N 86.1W	58	NY	100	N	Y	890612	18:40:27	163	229	54	69
84	61	USA-ME	LAKE MICHIGAN, SAGINAW BAY	43.5N 83.5W	42.5N 85.7W	58	LO	100	N	H	890612	18:40:34	163	230	53	69
84	62	USA-ME	DETROIT, LAKE HIRON	42.5N 83.8W	41.8N 85.3W	48	LO	100	N	H	890612	18:40:41	163	231	53	69
84	63	USA-ME	DETROIT, LAKE HIRON	43.5N 83.8W	41.8N 84.6W	48	LO	100	N	H	890612	18:40:52	163	233	53	69
84	64	USA-ME	DETROIT, LAKE ERIE	42.0N 83.5W	41.2N 84.2W	58	NY	100	N	H	890612	18:40:58	163	233	53	69
84	65	USA-NY	OHIO RIVER, CINCINNATI	39.0N 84.5W	40.8N 83.7W	88	LO	100	N	H	890612	18:41:57	163	234	53	69
84	66	BRAZIL	AMAZON RIVER	1.8S 51.5W	3.8S 51.5W	68	LO	100	O	N	890612	19:54:02	163	287	22	69
84	67	BRAZIL	AMAZON RIVER	0.8 50.5W	3.5S 51.1W	78	LO	100	O	N	890612	19:54:58	163	287	22	69
84	68	BRAZIL	AMAZON RIVER	0.5S 50.5W	4.2S 50.7W	78	LO	100	O	N	890612	19:55:19	163	288	21	69
84	69	BRAZIL	AMAZON RIVER	1.5S 52.0W	4.5S 50.8W	88	LO	100	O	N	890612	19:55:16	163	288	21	69
84	70	BRAZIL	AMAZON RIVER	0.5S 49.8W	4.9S 50.3W	78	HO	100	O	N	890612	19:55:23	163	288	21	69
84	71	USA-AK	ALEUTIAN RANGE	56.5N 153.8W	57.1N 152.6W	98	LO	100	N	H	890612	21:31:29	161	143	43	70
84	72	USA-AK	GULF OF ALASKA	61.0N 146.8W	57.1N 146.7W	88	HO	100	N	H	890612	21:31:44	161	144	43	70
84	73	USA-AK	ALEUTIAN RANGE	52.5N 153.8W	57.1N 150.1W	38	LO	100	N	H	890612	21:32:58	161	146	44	70
84	74	USA-AK	KODIAK ISLAND	57.5N 153.5W	57.1N 158.5W	78	LO	100	N	H	890612	21:32:03	161	147	44	70
84	75	USA-AK	CLOUDS		56.1N 145.8W	98	HO	100	N	H	890612	21:34:00	161	145	44	70
84	76	USA-AK	CLOUDS		56.0N 143.8W	98	HO	100	N	H	890612	21:34:18	161	147	48	70
84	77	USA-AK	CLOUDS		55.6N 141.8W	88	LO	100	N	H	890612	21:34:29	161	170	49	70
84	78	CANADA-BC	COAST MOUNTAINS	52.6N 126.5W	53.9N 133.6W	78	HO	100	N	H	890612	21:45:49	162	183	51	70
84	79	BOLIVIA	SALAR DE STONE	20.5S 67.5W	21.2S 63.3W	18	LO	100	O	N	890612	21:36:08	163	288	5	70
84	80	SOUTH AMERICA	ANDES MOUNTAINS		22.1S 62.8W	68	HO	100	O	N	890612	21:31:05	163	288	4	70
84	81	SOUTH AMERICA	CLOUDS		21.4S 61.7W	108	HO	100	N	H	890612	21:31:29	163	288	3	70
84	82	USSR-EUROPEAN	GORKYT, VOLGA RIVER	56.0N 44.8E	55.8N 39.7E	18	LO	100	N	H	890613	06:01:32	160	115	34	76
84	83	USSR-EUROPEAN	GORKYT, VOLGA RIVER	56.9N 44.8E	55.2N 41.8E	5	LO	100	N	H	890613	06:01:44	160	116	34	76
84	84	USSR-EUROPEAN	VOLGA RIVER	56.0N 44.8E	55.8N 41.7E	28	LO	100	N	H	890613	06:01:51	160	117	35	76
84	85	USSR-EUROPEAN	VOLGA RIVER	55.0N 47.0E	55.9N 44.7E	48	LO	100	N	H	890613	06:02:18	160	121	36	76
84	86	USSR-EUROPEAN	VOLGA RIVER	56.5N 43.8E	56.8N 43.2E	58	LO	100	N	H	890613	06:02:23	160	121	36	76
84	87	USSR	CLOUDS		57.1N 62.6E	78	LO	100	N	H	890613	06:04:57	161	140	42	76
84	88	USSR-MIDDLE	FIRES, SMOKE		56.6N 73.4E	98	LO	100	N	H	890613	06:04:27	161	157	44	76
84	89	USSR-MIDDLE	FIRES, SMOKE		56.2N 73.6E	98	LO	100	N	H	890613	06:04:47	161	160	47	76
84	90	USSR-MIDDLE	FIRES, SMOKE		56.1N 77.3E	88	LO	100	N	H	890613	06:07:02	161	162	48	76
84	91	USSR-MIDDLE	OB RIVER, NOYOSIBERSK	54.5N 83.5E	55.6N 80.5E	88	LO	100	N	H	890613	06:07:31	161	167	49	76
84	92	MONGOLIA	LAKE HOVSOGOL	51.0N 100.5E	51.6N 96.3E	98	LO	100	N	H	890613	06:18:12	162	182	53	76
84	93	CHINA	Gobi DESERT	43.0N 118.8E	46.3N 107.3E	68	HO	100	N	H	890613	06:12:58	162	213	55	76
84	94	CHINA	YELLOW RIVER	41.0N 104.5E	44.0N 107.8E	38	HO	100	N	H	890613	06:12:58	162	214	55	76
84	95	CHINA	YELLOW RIVER	40.5N 106.5E		28	HO	100	N	H						
85	1		BLANK													
85	2	MEXICO	SERRA MADRE ORIENTAL	23.5N 99.8W	22.2N 100.8W	88	LO	100	O	N	890618	12:54:50	161	76	8	33
85	3	MEXICO	SERRA MADRE ORIENTAL	23.5N 99.5W	22.4N 100.8W	78	LO	100	O	N	890618	12:54:54	161	76	8	33
85	4	MEXICO	SERRA MADRE ORIENTAL	24.0N 100.0W	22.9N 100.2W	78	LO	100	O	N	890618	12:57:04	161	77	8	33
85	5	MEXICO	SERRA MADRE ORIENTAL	24.0N 100.0W	23.1N 100.1W	68	NY	100	N	Y	890618	12:57:43	161	77	9	33
85	6	MEXICO	SERRA MADRE ORIENTAL	24.0N 99.5W	23.6N 99.8W	68	NY	100	N	Y	890618	12:57:16	161	77	9	33
85	7	MEXICO	SERRA MADRE ORIENTAL	24.5N 99.5W	23.2N 99.6W	68	NY	100	O	N	890618	12:57:20	161	77	9	33
85	8	MEXICO	GULF OF MEXICO COASTLINE	24.5N 98.8W	24.4N 99.2W	58	NY	100	O	N	890618	12:57:31	161	77	10	33
85	9	MEXICO	GULF OF MEXICO COASTLINE	24.5N 98.8W	24.8N 98.0W	58	NY	100	O	N	890618	12:57:39	161	77	10	33
85	10	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W	25.6N 98.2W	58	NY	100	O	N	890618	12:57:55	161	78	11	33

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
85	11	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W	25.9N 98.1W	50 NV	100 O N 890810	12:57:59	161 78 11 33
85	12	MEXICO	GULF OF MEXICO COASTLINE	26.5N 98.0W	26.5N 97.7W	30 LO	100 N H 890810	12:58:00	161 78 12 33
85	13	MEXICO	GULF OF MEXICO COASTLINE	25.8N 97.5W	26.5N 97.6W	70 NV	100 O N 890810	12:58:11	161 78 12 33
85	14	USA-TX	CLOUDS	29.5N 96.0W	29.1N 95.5W	90 NV	100 O N 890810	12:59:06	161 80 14 33
85	15	USA-TX	CLOUDS	29.5N 95.5W	29.2N 95.5W	90 NV	100 O N 890810	12:59:02	161 80 14 33
85	16	USA-TX	CLOUDS, GALVESTON BAY	29.5N 94.5W	29.6N 95.1W	90 NV	100 O N 890810	12:59:18	161 80 15 33
85	17	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W	29.7N 95.0W	90 NV	100 O N 890810	12:59:13	161 80 15 33
85	18	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W	30.0N 94.5W	90 NV	100 O N 890810	12:59:18	161 81 15 33
85	19	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W	30.2N 94.6W	70 NV	100 N H 890810	12:59:21	161 81 15 33
85	20	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W	30.0N 94.6W	30 NV	100 O N 890810	12:59:26	161 81 15 33
85	21	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W	30.6N 94.5W	90 NV	100 O N 890810	12:59:29	161 81 16 33
85	22	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W	30.0N 94.5W	90 NV	100 N H 890810	12:59:33	161 81 16 33
85	23	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.5W	30.9N 94.0W	70 NV	100 N H 890810	12:59:35	161 81 16 33
85	24	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.0W	31.1N 93.8W	60 NV	100 N H 890810	12:59:39	161 81 16 33
85	25	USA-TX	CLOUDS, LOUISIANA BORDER	31.0N 94.0W	31.0N 93.5W	50 NV	100 O N 890810	12:59:44	161 82 16 33
85	26	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W	31.7N 93.5W	40 NV	100 N H 890810	12:59:51	161 82 17 33
85	27	USA-TX	CLOUDS	29.0N 95.0W	32.7N 92.4W	90 LO	100 O N 890810	13:00:10	161 83 18 33
85	28	USA-TX	CLOUDS	29.5N 95.5W	32.0N 92.7W	90 HO	100 O N 890810	13:00:14	161 83 18 33
85	29	USA-MS	MISSISSIPPI RIVER	31.0N 91.0W	31.6N 90.6W	20 NV	100 O N 890810	13:00:48	161 84 19 33
85	30	USA-MS	MISSISSIPPI RIVER	31.0N 91.0W	31.0N 90.6W	20 NV	100 O N 890810	13:00:52	161 84 20 33
85	31	USA-TN	MISSISSIPPI RIVER	35.5N 90.0W	35.1N 90.1W	5 LO	100 O N 890810	13:01:50	161 85 20 33
85	32	USA-TN	MISSISSIPPI RIVER	35.5N 90.0W	35.3N 89.9W	5 NV	100 O N 890810	13:01:52	161 85 20 33
85	33	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W	35.7N 89.5W	5 NV	100 O N 890810	13:01:59	161 85 21 33
85	34	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W	35.0N 89.0W	5 NV	100 O N 890810	13:01:53	161 85 21 33
85	35	USA-KY	OHIO RIVER	37.0N 88.5W	36.3W 88.9W	5 NV	100 O N 890810	13:01:23	161 86 21 33
85	36	USA-KY	OHIO RIVER	37.0N 88.5W	36.0W 88.7W	5 NV	100 O N 890810	13:01:25	161 86 21 33
85	37	USA-IN	OHIO RIVER	36.0N 87.5W	37.0N 88.2W	5 NV	100 O N 890810	13:01:36	161 87 22 33
85	38	USA-IN	OHIO RIVER	36.0N 87.5W	37.0N 88.1W	5 NV	100 O N 890810	13:01:38	161 87 22 33
85	39	USA-IN	OHIO RIVER	36.0N 85.5W	38.1N 87.0W	5 NV	100 O N 890810	13:01:59	161 88 23 33
85	40	USA-IN	OHIO RIVER	36.0N 85.5W	38.2N 86.9W	5 NV	100 O N 890810	13:02:02	161 88 23 33
85	41	USA-KY	OHIO RIVER	36.0N 84.5W	38.7N 86.2W	5 NV	100 O N 890810	13:02:12	161 88 23 33
85	42	USA-OH	OHIO RIVER	36.5N 84.5W	38.5N 86.1W	5 NV	100 O N 890810	13:02:15	161 89 24 33
85	43	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W	39.5N 84.0W	5 NV	100 O N 890810	13:02:37	161 90 25 33
85	44	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W	40.1N 84.0W	5 NV	100 O N 890810	13:02:41	161 90 25 33
85	45	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W	40.2N 84.0W	5 NV	100 O N 890810	13:02:45	161 90 25 33
85	46	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W	40.5N 84.0W	5 NV	100 O N 890810	13:02:52	161 91 25 33
85	47	USA-OH	COLUMBUS	42.0N 83.0W	42.0N 82.6W	5 NV	100 O N 890810	13:02:50	161 91 26 33
85	48	USA-OH	COLUMBUS	42.0N 82.0W	41.2N 82.7W	5 NV	100 O N 890810	13:03:05	161 92 26 33
85	49	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.5W	43.3N 80.5W	5 NV	100 O N 890810	13:03:52	161 95 28 33
85	50	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.5W	43.5N 80.1W	5 NV	100 O N 890810	13:03:56	161 95 28 33
85	51	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.0N 79.0W	5 NV	100 O N 890810	13:04:00	161 96 28 33
85	52	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.0N 79.0W	5 NV	100 O N 890810	13:04:06	161 96 28 33
85	53	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.0N 79.5W	5 NV	100 O N 890810	13:04:08	161 96 28 33
85	54	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.1N 79.7W	5 NV	100 O N 890810	13:04:17	161 97 29 33
85	55	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.6N 78.5W	5 NV	100 O N 890810	13:04:21	161 97 29 33
85	56	USA-NY	FINGER LAKES, L. ONTARIO	42.5N 76.5W	45.3N 77.5W	20 LO	100 O N 890810	13:04:38	161 98 30 33
85	57	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.5W	45.0N 77.2W	30 LO	100 O N 890810	13:04:48	161 99 30 33
85	58	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.0W	45.6N 76.0W	30 LO	100 O N 890810	13:04:45	161 99 31 33
85	59	CANADA-Q	ST. LAWRENCE RIVER	45.5N 73.5W	46.7N 74.9W	10 NV	100 N H 890810	13:05:12	161 101 32 33
85	60	CANADA-Q	ST. LAWRENCE RIVER	45.5N 74.0W	46.0N 74.0W	10 NV	100 N H 890810	13:05:14	161 101 32 33
85	61	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 78.0W	47.0N 73.5W	40 HO	100 O N 890810	13:05:31	161 103 33 33
85	62	CANADA-Q	RESERVOIR GOORN	46.5N 74.5W	48.0N 76.0W	30 LO	100 O N 890810	13:06:09	161 106 34 33
85	63	CANADA-Q	RESERVOIR GOORN	46.0N 74.5W	49.1N 76.3W	30 LO	100 O N 890810	13:06:13	161 107 34 33
85	64	CANADA-Q	RESERVOIR PIMMIGAN	49.5N 70.5W	49.6N 69.2W	10 NV	100 N H 890810	13:06:27	161 108 35 33
85	65	CANADA-Q	RESERVOIR PIMMIGAN	49.5N 70.5W	49.7N 69.9W	20 NV	100 N H 890810	13:06:30	161 109 35 33
85	66	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W	50.1N 67.5W	30 LO	100 O N 890810	13:06:48	161 110 36 33
85	67	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W	50.4N 67.2W	40 LO	100 O N 890810	13:06:51	161 111 36 33
85	68	CANADA-Q	LAC MAGPIE	51.0N 65.0W	51.5N 64.5W	90 NV	100 N H 890810	13:07:22	161 114 37 33
85	69	CANADA-Q	LAC MAGPIE	51.5N 65.0W	51.6N 64.5W	90 NV	100 N H 890810	13:07:25	161 114 37 33
85	70	CANADA-N	GULF OF SAINT LAWRENCE	50.0N 57.5W	52.3N 62.2W	30 LO	100 N H 890810	13:07:48	161 117 38 33
85	71	CANADA-N	GULF OF SAINT LAWRENCE	50.5N 57.0W	52.0N 61.8W	30 LO	100 N H 890810	13:07:52	161 118 38 33
85	72	CANADA-N	GROSWATER BAY	54.5N 58.5W	52.0N 60.7W	70 LO	100 N H 890810	13:08:04	161 119 39 33
85	73	CANADA-N	GROSWATER BAY	54.0N 58.5W	52.0N 60.5W	70 LO	100 N H 890810	13:08:09	161 120 39 33
85	74	CANADA-N	LABRADOR SEA COASTLINE	55.0N 60.0W	53.5N 58.0W	70 LO	100 N H 890810	13:08:24	161 121 39 33
85	75	CANADA-N	LABRADOR SEA COASTLINE	55.0N 59.5W	53.5N 58.2W	70 LO	100 N H 890810	13:08:30	161 122 40 33
85	76	CANADA-Q	GULF OF SAINT LAWRENCE	50.0N 64.5W	54.1N 56.1W	50 HO	100 O N 890810	13:08:52	161 125 40 33
85	77	CANADA-Q	GULF OF SAINT LAWRENCE	50.5N 62.5W	54.3N 55.3W	70 HO	100 O N 890810	13:09:00	161 126 41 33
85	78	CANADA-Q	GULF OF SAINT LAWRENCE	50.0N 62.0W	54.3N 52.3W	60 HO	100 N H 890810	13:09:29	161 130 42 33
85	79	CANADA-Q	GULF OF SAINT LAWRENCE	51.0N 59.5W	55.1N 51.7W	50 HO	100 O N 890810	13:09:35	161 131 42 33
85	80	CANADA-Q	GULF OF SAINT LAWRENCE	51.5N 57.5W	55.3N 50.5W	40 HO	100 O N 890810	13:09:46	161 133 42 33

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR
85	81	CANADA-Q	GULF OF SAINT LAWRENCE	51.5N 57.5W 55.4N 48.9W	30 HO	100	O N	890812	13:09:53	161	134	43	33
85	82	CANADA-A	EDMONTON	53.5N 113.5W 55.0N 113.4W	28 LO	100	O N	890812	16:27:00	161	118	36	67
85	83	CANADA-A	EDMONTON	53.5N 113.5W 55.1N 113.8W	28 LO	100	O N	890812	16:27:12	161	119	36	67
85	84	CANADA-A	EDMONTON	53.5N 113.5W 55.2N 112.6W	28 LO	100	O N	890812	16:27:16	161	119	36	67
85	85	CANADA-S	PETER POND LAKE	56.0N 108.5W 55.9N 108.2W	8 NV	100	O N	890812	16:27:57	161	124	38	67
85	86	CANADA-S	PETER POND LAKE	56.0N 108.5W 56.0N 107.8W	8 NV	100	O N	890812	16:28:01	161	125	38	67
85	87	CANADA-S	LAKES, CLOUDS	57.0N 107.5W 56.4N 104.7W	42 NV	100	O N	890812	16:28:28	161	129	39	67
85	88	CANADA-S	LAKES, CLOUDS	57.0N 107.5W 56.4N 104.4W	40 NV	100	O N	890812	16:28:31	161	129	39	67
85	89	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N 73.5W	70 LO	100	O N	890812	16:33:00	161	179	49	67
85	90	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N 73.1W	70 LO	100	O N	890812	16:33:03	161	171	49	67
85	91	CANADA-Q	LAC NAOCOCANE	53.0N 71.0W 55.5N 71.2W	28 LO	100	N N	890812	16:33:21	162	176	50	67
85	92	CANADA-Q	LAC NAOCOCANE	53.0N 71.0W 55.2N 70.7W	28 LO	100	N N	890812	16:33:26	162	175	50	67
85	93	CANADA-Q	RESERVOIR MANICOUAGAN	52.5N 66.5W 54.6N 67.9W	40 LO	100	N N	890812	16:33:53	162	179	50	67
85	94	CANADA-Q	PETIT LAC MANICOUAGAN	52.5N 67.5W 54.6N 67.4W	50 LO	100	N N	890812	16:33:57	162	199	50	67
85	95	CANADA-H	LAKE MELVILLE	53.0N 61.0W 53.2N 62.4W	60 LO	100	O N	890812	16:34:46	162	188	52	67
85	96	CANADA-H	LAKE MELVILLE	53.0N 61.0W 53.1N 61.5W	60 LO	100	O N	890812	16:34:53	162	189	52	67
85	97	CANADA-H	AVALLON PENINSULA	48.0N 53.0W 49.3N 51.7W	20 LO	100	O N	890812	16:34:50	162	207	53	67
85	98	CANADA-H	AVALLON PENINSULA	48.0N 53.0W 49.1N 51.7W	20 LO	100	O N	890812	16:34:53	162	206	53	67
85	99	SIERRA LEONE	COASTLINE	8.0N 13.0W 8.9N 12.5W	70 LO	100	O N	890812	16:50:21	163	202	32	67
85	100	SIERRA LEONE	COASTLINE	8.0N 13.0W 8.7N 12.2W	70 LO	100	O N	890812	16:50:25	163	202	32	67
85	101	SIERRA LEONE	COASTLINE	7.0N 11.5W 7.4N 11.0W	60 NV	100	N N	890812	16:50:00	163	203	31	67
86	1		BLANK										
86	2	MEXICO	SIERRA MADRE ORIENTAL	23.5N 98.5W 22.2N 100.5W	30 LO	100	O N	890810	12:54:47	161	76	8	33
86	3	MEXICO	SIERRA MADRE ORIENTAL	23.5N 98.5W 22.4N 100.6W	70 LO	100	O N	890810	12:54:51	161	76	8	33
86	4	MEXICO	SIERRA MADRE ORIENTAL	23.8N 98.8W 22.9N 100.2W	70 LO	100	O N	890810	12:57:01	161	77	8	33
86	5	MEXICO	SIERRA MADRE ORIENTAL	24.5N 98.8W 23.1N 100.1W	60 NV	100	N N	890810	12:57:05	161	77	9	33
86	6	MEXICO	SIERRA MADRE ORIENTAL	24.5N 98.8W 23.6N 99.9W	60 NV	100	N N	890810	12:57:13	161	77	9	33
86	7	MEXICO	SIERRA MADRE ORIENTAL	24.5N 98.5W 23.8N 99.6W	60 NV	100	O N	890810	12:57:17	161	77	9	33
86	8	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.8W 21.4N 99.2W	50 NV	100	O N	890810	12:57:28	161	77	10	33
86	9	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.8W 21.2N 99.1W	50 NV	100	O N	890810	12:57:37	161	78	10	33
86	10	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.7N 98.2W	50 NV	100	O N	890810	12:57:53	161	78	11	33
86	11	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.9N 98.1W	50 NV	100	O N	890810	12:57:56	161	78	11	33
86	12	MEXICO	GULF OF MEXICO COASTLINE	26.5N 96.8W 26.3N 97.7W	30 LO	100	N N	890810	12:58:05	161	78	12	33
86	13	MEXICO	GULF OF MEXICO COASTLINE	25.0N 96.8W 26.5N 97.6W	70 LO	100	O N	890810	12:58:00	161	78	12	33
86	14	USA-TX	CLOUDS	29.5N 96.0W 29.1N 95.5W	30 NV	100	O N	890810	12:58:57	161	80	14	33
86	15	USA-TX	CLOUDS, GALVESTON BAY	29.5N 96.0W 29.2N 95.4W	30 NV	100	N N	890810	12:58:00	161	80	14	33
86	16	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.8W 29.0N 95.1W	30 NV	100	O N	890810	12:58:06	161	80	15	33
86	17	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.8W 29.0N 94.9W	30 NV	100	O N	890810	12:59:11	161	80	15	33
86	18	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.0N 94.8W	30 NV	100	O N	890810	12:59:15	161	81	15	33
86	19	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.2N 94.6W	70 NV	100	N N	890810	12:59:19	161	81	15	33
86	20	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 30.4N 94.0W	30 NV	100	O N	890810	12:59:23	161	81	15	33
86	21	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.6N 94.2W	30 NV	100	O N	890810	12:59:27	161	81	16	33
86	22	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.8N 94.1W	30 NV	100	N N	890810	12:59:30	161	81	16	33
86	23	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.5W 30.9N 94.8W	70 NV	100	O N	890810	12:59:33	161	81	16	33
86	24	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.0W 31.1N 93.8W	60 NV	100	O N	890810	12:59:37	161	81	16	33
86	25	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.5N 93.5W	50 NV	100	O N	890810	12:59:44	161	82	16	33
86	26	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.7N 93.3W	40 NV	100	O N	890810	12:59:48	161	82	17	33
86	27	USA-TX	CLOUDS	29.0N 95.0W 32.7N 92.4W	30 LO	100	O N	890810	13:00:47	161	83	18	33
86	28	USA-TX	CLOUDS	29.5N 95.5W 32.9N 92.2W	30 HO	100	O N	890810	13:00:12	161	83	18	33
86	29	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.6N 90.5W	20 NV	100	O N	890810	13:00:44	161	84	19	33
86	30	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.8N 90.4W	20 NV	100	O N	890810	13:00:49	161	84	20	33
86	31	USA-TN	MISSISSIPPI RIVER	35.5N 90.0W 35.1N 90.1W	5 NV	100	O N	890810	13:00:56	161	85	20	33
86	32	USA-TN	MISSISSIPPI RIVER	35.5N 90.0W 35.3N 89.9W	5 NV	100	O N	890810	13:01:00	161	85	20	33
86	33	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.7N 89.5W	5 NV	100	N N	890810	13:01:00	161	85	21	33
86	34	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.6N 89.3W	5 NV	100	O N	890810	13:01:11	161	85	21	33
86	35	USA-KY	OHIO RIVER	37.0N 88.5W 36.3N 88.7W	5 NV	100	O N	890810	13:01:20	161	86	21	33
86	36	USA-KY	OHIO RIVER	37.0N 88.5W 36.5N 88.7W	5 NV	100	O N	890810	13:01:23	161	86	21	33
86	37	USA-IN	OHIO RIVER	38.0N 87.5W 37.0N 88.2W	5 NV	100	O N	890810	13:01:33	161	87	22	33
86	38	USA-IN	OHIO RIVER	38.0N 87.5W 37.1N 88.0W	5 NV	100	N N	890810	13:01:36	161	87	22	33
86	39	USA-IN	OHIO RIVER	38.0N 85.5W 38.1N 87.0W	5 NV	100	O N	890810	13:01:54	161	88	23	33
86	40	USA-IN	OHIO RIVER	39.0N 85.5W 38.3N 86.7W	5 NV	100	O N	890810	13:02:06	161	88	23	33
86	41	USA-IN	OHIO RIVER	39.0N 85.0W 38.7N 86.2W	5 NV	100	O N	890810	13:02:09	161	89	23	33
86	42	USA-OH	OHIO RIVER	39.5N 84.5W 38.9N 86.0W	5 NV	100	O N	890810	13:02:13	161	89	24	33
86	43	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W 39.9N 84.9W	5 NV	100	O N	890810	13:02:34	161	90	25	33
86	44	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W 40.1N 84.6W	5 NV	100	O N	890810	13:02:38	161	90	25	33
86	45	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W 40.2N 84.4W	5 NV	100	O N	890810	13:02:42	161	90	25	33
86	46	USA-OH	DAYTON, CINCINNATI	40.0N 84.0W 40.5N 84.0W	5 NV	100	O N	890810	13:02:49	161	91	25	33
86	47	USA-OH	COLUMBUS	40.0N 83.0W 40.9N 83.5W	5 NV	100	O N	890810	13:02:54	161	91	26	33
86	48	USA-OH	COLUMBUS	40.0N 83.0W 41.2N 83.2W	5 NV	100	O N	890810	13:03:03	161	92	26	33
86	49	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 43.3N 80.3W	5 NV	100	O N	890810	13:03:50	161	95	28	33

**TABLE 4-3. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR
86	50	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 43.5N 78.1W	5 NV 100 O N 890810	13:31:53	161	95	26	33			
86	51	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 43.6N 79.1W	5 NV 100 O N 890810	13:31:57	161	96	28	33			
86	52	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 43.3N 79.4W	5 NV 100 O N 890810	13:34:33	161	96	29	33			
86	53	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 44.0N 79.3W	5 NV 100 O N 890810	13:34:36	161	96	29	33			
86	54	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 44.5N 78.6W	5 NV 100 O N 890810	13:34:16	161	97	29	33			
86	55	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 44.6N 78.5W	5 NV 100 O N 890810	13:34:18	161	97	29	33			
86	56	USA-NY	FINGER LAKES, L. ONTARIO	42.5N 76.5W 45.3N 77.3W	20 LO 100 O N 890810	13:34:35	161	98	30	33			
86	57	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.5W 45.6N 77.1W	30 LO 100 O N 890810	13:34:38	161	99	30	33			
86	58	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.5W 45.6N 76.8W	30 LO 100 O N 890810	13:34:43	161	99	31	33			
86	59	CANADA-Q	ST. LAWRENCE RIVER	45.5N 73.5W 46.7N 74.9W	10 NV 100 O N 890810	13:35:09	161	101	32	33			
86	60	CANADA-Q	ST. LAWRENCE RIVER	45.5N 74.0W 46.8N 74.7W	10 NV 100 O N 890810	13:35:12	161	102	32	33			
86	61	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W 47.4N 73.5W	40 HO 100 O N 890810	13:35:28	161	103	33	33			
86	62	CANADA-Q	RESERVOIR GOUTIN	48.5N 74.5W 48.9N 70.6W	30 LO 100 O N 890810	13:36:06	161	106	34	33			
86	63	CANADA-Q	RESERVOIR GOUTIN	49.0N 74.5W 49.1N 70.2W	30 LO 100 O N 890810	13:36:11	161	107	34	33			
86	64	CANADA-Q	RESERVOIR PIMOUACAN	49.5N 70.5W 49.6N 69.2W	10 NV 100 O N 890810	13:36:18	161	108	35	33			
86	65	CANADA-Q	RESERVOIR PIMOUACAN	49.5N 70.5W 49.7N 68.9W	20 NV 100 O N 890810	13:36:27	161	109	35	33			
86	66	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.3N 67.4W	30 LO 100 O N 890810	13:36:44	161	111	34	33			
86	67	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.4N 67.2W	40 LO 100 O N 890810	13:36:48	161	111	34	33			
86	68	CANADA-Q	LAC MAGPIE	51.0N 65.5W 51.5N 64.5W	00 NV 100 O N 890810	13:37:29	161	114	37	33			
86	69	CANADA-Q	LAC MAGPIE	51.5N 65.5W 51.6N 64.2W	00 NV 100 O N 890810	13:37:23	161	115	37	33			
86	70	CANADA-N	GULF OF SAINT LAWRENCE	50.5N 57.0W 52.3N 62.2W	30 LO 100 H N 890810	13:37:45	161	117	38	33			
86	71	CANADA-N	GULF OF SAINT LAWRENCE	50.5N 57.5W 52.4N 61.7W	30 LO 100 H N 890810	13:37:50	161	118	38	33			
86	72	CANADA-N	GROSWATER BAY	54.5N 58.5W 52.8N 63.2W	70 LO 100 H N 890810	13:38:01	161	119	39	33			
86	73	CANADA-N	GROSWATER BAY	54.0N 58.5W 52.8N 63.3W	70 LO 100 H N 890810	13:38:06	161	120	39	33			
86	74	CANADA-N	LABRADOR SEA COASTLINE	55.0N 60.0W 53.6N 58.7W	70 LO 100 H N 890810	13:38:22	161	122	40	33			
86	75	CANADA-N	LABRADOR SEA COASTLINE	55.0N 59.5W 52.5N 58.2W	70 LO 100 H N 890810	13:38:27	161	122	40	33			
86	76	CANADA-N	GULF OF SAINT LAWRENCE	50.0N 54.5W 54.1N 58.0W	50 HO 100 O N 890810	13:38:50	161	125	41	33			
86	77	CANADA-N	GULF OF SAINT LAWRENCE	50.5N 62.5W 54.3N 55.3W	70 HO 100 O N 890810	13:38:57	161	126	41	33			
86	78	CANADA-N	GULF OF SAINT LAWRENCE	50.0N 62.0W 54.0N 52.3W	60 HO 100 O N 890810	13:39:26	161	130	42	33			
86	79	CANADA-N	GULF OF SAINT LAWRENCE	51.0N 59.5W 55.1N 51.6W	50 HO 100 O N 890810	13:39:33	161	131	42	33			
86	80	CANADA-N	GULF OF SAINT LAWRENCE	51.5N 57.5W 55.3N 50.5W	40 HO 100 O N 890810	13:39:43	161	133	42	33			
86	81	CANADA-N	GULF OF SAINT LAWRENCE	51.5N 57.5W 55.4N 49.3W	30 HO 100 O N 890810	13:39:50	161	134	43	33			
86	82	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N 73.5W	60 LO 100 H N 890812	16:32:57	161	178	49	67			
86	83	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N 73.0W	70 LO 100 H N 890812	16:33:01	161	171	49	67			
86	84	CANADA-Q	LAC MADOCANE	53.0N 71.0W 55.3N 71.1W	20 LO 100 H N 890812	16:33:19	162	174	50	67			
86	85	CANADA-Q	LAC MADOCANE	52.0N 71.0W 55.2N 70.6W	20 LO 100 H N 890812	16:33:24	162	175	50	67			
86	86	CANADA-Q	RESERVOIR MANICOUAGAN	52.5N 68.0W 54.6N 67.0W	40 LO 100 H N 890812	16:33:50	162	179	50	67			
86	87	CANADA-Q	PETIT LAC MANICOUAGAN	53.0N 68.0W 56.0N 67.0W	50 LO 100 O N 890812	16:33:54	162	180	50	67			
86	88	CANADA-N	LAKE MELVILLE	53.0N 61.0W 53.2N 62.4W	60 LO 100 O N 890812	16:34:45	162	188	52	67			
86	89	CANADA-N	LAKE MELVILLE	53.0N 61.0W 53.1N 61.9W	60 LO 100 O N 890812	16:34:50	162	189	52	67			
86	90	CANADA-N	AYALON PENINSULA	47.5N 53.0W 49.3N 51.7W	30 LO 100 O N 890812	16:36:47	162	207	53	67			
86	91	CANADA-N	AYALON PENINSULA	47.5N 53.0W 49.1N 51.7W	10 LO 100 O N 890812	16:36:52	162	208	53	67			
86	92	GUINEA	COASTLINE, SIERRA LEONE	9.0N 13.5W 8.9N 12.3W	70 LO 100 O N 890812	16:50:18	165	202	32	67			
86	93	SIERRA LEONE	COASTLINE, GUINEA	9.0N 13.0W 8.7N 12.2W	70 LO 100 H N 890812	16:50:22	165	202	32	67			
86	94	SIERRA LEONE	COASTLINE	7.0N 11.5W 7.4N 11.7W	60 NV 100 H N 890812	16:50:46	165	203	31	67			
86	95	SIERRA LEONE	COASTLINE	7.0N 11.5W 7.1N 11.7W	80 NV 100 H N 890812	16:50:51	165	203	31	67			
86	96	LIBERIA	COASTLINE	6.5N 11.0W 6.1N 10.7W	00 NV 100 H N 890812	16:51:06	165	204	30	67			
86	97	LIBERIA	COASTLINE	6.5N 10.5W 6.0N 10.7W	90 NV 100 O N 890812	16:51:10	165	204	30	67			
86	98	LIBERIA	COASTLINE	6.5N 11.0W 5.9N 10.6W	90 NV 100 H N 890812	16:51:13	165	204	29	67			
86	99	CLOUDS	CLOUDS		90 HO 100 O N								
86	100	CLOUDS	CLOUDS		50 HO 100 O N								
86	101	CLOUDS	CLOUDS		90 HO 100 O N								
87	1	USA-IL	ST. LOUIS, MISSOURI	39.0N 90.5W 40.0N 90.0W	60 NV 100 H Y 890810	20:55:24	163	249	46	38			
87	2	USA-IL	ST. LOUIS, MISSOURI	39.0N 90.5W 39.7N 92.0W	60 NV 100 H Y 890810	20:55:31	163	249	46	38			
87	3	USA-IL	CENTRALIA	38.5N 89.0W 39.0N 89.2W	80 NV 100 H Y 890810	20:55:45	164	251	45	38			
87	4	USA-KY	OHIO RIVER	37.0N 88.0W 38.0N 88.0W	70 NV 100 H Y 890810	20:56:06	164	253	45	38			
87	5	USA-KY	OHIO RIVER	37.0N 88.0W 37.6N 87.6W	70 NV 100 H Y 890810	20:56:14	164	253	45	38			
87	6	USA-TN	CHATTANOOGA	35.0N 85.0W 35.7N 85.6W	70 NV 100 H Y 890810	20:56:58	164	257	45	38			
87	7	USA-TN	CHATTANOOGA	35.0N 85.0W 35.5N 85.4W	70 NV 100 H Y 890810	20:56:58	164	257	45	38			
87	8	USA-SC	HARTWELL RESERVOIR	34.5N 83.0W 33.7N 83.6W	60 NV 100 H N 890810	20:57:34	164	260	42	38			
87	9	JAPAN	HONSHU	39.5N 140.5E 40.0N 137.4E	85 LO 100 H N 890810	22:05:44	161	89	23	39			
87	10	JAPAN	HOKKAIDO, HONSHU	42.0N 141.0E 41.3N 139.0E	75 LO 100 H N 890810	22:06:11	161	91	24	39			
87	11	USA-WA	COLUMBIA RIVER BASIN	46.5N 121.5W 48.8N 127.2W	50 LO 100 H N 890810	22:22:30	163	223	50	39			
87	12	USA-CA	OREGON&CALIFORNIA COAST	41.5N 122.5W 47.1N 123.8W	30 HO 100 H N 890810	22:23:16	163	229	49	39			
87	13	USA-NM	RIO GRANDE, WHITE SANDS	32.0N 106.5W 34.3N 111.3W	70 HO 100 H N 890810	22:26:33	164	252	45	39			
87	14	MEXICO	RIO GRANDE, BIG BEND	29.0N 103.5W 31.3N 104.4W	70 LO 100 H N 890810	22:28:53	164	264	41	39			
87	15	MEXICO	SIERRA MADRE ORIENTAL	26.5N 102.5W 30.9N 104.0W	80 HO 100 H N 890810	22:29:02	164	264	40	39			
87	16	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W 34.6N 6.3W	30 NV 100 H N 890811	07:07:01	161	82	16	45			
87	17	SPAIN	MEDITERRANEAN COASTLINE	38.0N 2.0W 37.1N 3.8W	5 NV 100 H N 890811	07:07:52	161	85	18	45			
87	18	SPAIN	PYRENEES	42.0N 1.5E 40.0N 0.0W	60 LO 100 H N 890811	07:09:00	161	88	22	45			

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL	OR
87	19	SPAIN	PYRENEES	42.0N 1.0E	48.6N 0.2E	50	LO	100	N H 890811 07:09:04	161 88 22	45
87	20	FRANCE	MEDITERRANEAN COASTLINE	41.0N 6.0E	42.9N 3.3E	30	LO	100	N H 890811 07:09:55	161 92 25	45
87	21	FRANCE	MEDITERRANEAN COASTLINE	41.0N 5.0E	43.1N 3.5E	5	NY	100	N Y 890811 07:09:50	161 92 25	45
87	22	FRANCE	MEDITERRANEAN COASTLINE	41.0N 4.5E	43.2N 3.5E	10	NY	100	N Y 890811 07:10:03	161 92 25	45
87	23	ITALY	ALPS, LAKE MAGGIORE	45.0N 8.5E	46.2N 8.5E	90	NY	100	N H 890811 07:11:13	161 97 28	45
87	24	EUROPE	CLOUDS		46.0N 9.6E	90		100	N H 890811 07:11:20	161 99 29	45
87	25	USSR-EUROPEAN	KAMA RIVER	54.5N 53.0E	57.0N 49.1E	20	LO	100	N H 890811 07:12:15	161 148 45	45
87	26	USSR-EUROPEAN	KAMA RIVER	54.0N 54.5E	57.1N 51.1E	40	LO	100	N H 890811 07:12:32	161 151 45	45
87	27	USSR-EUROPEAN	KAMA RIVER	57.0N 56.0E	57.1N 52.4E	50	LO	100	N H 890811 07:12:43	161 153 46	45
87	28	USSR-EUROPEAN	KAMA RIVER	59.0N 56.5E	57.2N 52.8E	50	LO	100	N H 890811 07:12:55	161 155 46	45
87	29	USSR-MIDDLE	CLOUDS		56.5N 46.4E	90	HO	100	N H 890811 07:20:44	162 173 49	45
87	30	USSR-MIDDLE	FIRE, SMOKE		56.0N 70.3E	90	HO	100	N H 890811 07:21:18	162 179 49	45
87	31	USSR-MIDDLE	FIRE, SMOKE		55.9N 71.1E	90	HO	100	N H 890811 07:21:26	162 180 50	45
87	32	MONGOLIA	DESERT	45.0N 105.0E	46.0N 100.3E	20	LO	100	N H 890811 07:26:50	163 230 50	45
87	33	MONGOLIA	DESERT	45.0N 107.0E	45.2N 101.4E	20	LO	100	N H 890811 07:27:07	163 232 50	45
87	34	CHINA	NORTHEASTERN CHINA	37.5N 116.0E	37.5N 111.6E	60	LO	100	N H 890811 07:29:57	164 251 46	45
87	35	CHINA	YELLOW RIVER	34.5N 114.0E	37.0N 112.2E	60	LO	100	N H 890811 07:30:00	164 253 46	45
87	36	CHINA	YANGTZE RIVER	32.0N 117.5E	34.0N 115.2E	30	LO	100	N H 890811 07:31:00	164 254 46	45
87	37	CHINA	YANGTZE RIVER	31.0N 117.5E	33.0N 118.0E	30	NY	100	N H 890811 07:32:09	164 263 42	45
87	38	CHINA	MOUNTAINS, CLOUDS	29.0N 119.5E	28.6N 123.8E	70	NY	100	N H 890811 07:32:54	164 264 40	45
87	39	CHINA	COASTLINE	28.0N 121.0E	27.4N 121.0E	30	NY	100	N H 890811 07:33:17	164 264 40	45
87	40	CHINA	FORMOSA STRAIT, COASTLINE	25.5N 119.5E	26.0N 122.1E	30	LO	100	N H 890811 07:33:44	165 269 39	45
87	41	TAIWAN	SOUTHERN END, CLOUDS	23.0N 120.5E	24.5N 121.3E	50	LO	100	N H 890811 07:34:25	165 271 37	45
87	42	TAIWAN	NORTHERN END, CLOUDS	24.5N 121.5E	23.9N 121.6E	50	LO	100	N H 890811 07:34:23	165 272 37	45
87	43	TAIWAN	NORTHERN END, CLOUDS	25.0N 122.0E	23.6N 121.8E	50	LO	100	N H 890811 07:34:28	165 272 37	45
87	44	CLOUDS	CLOUDS		39.1N 24.5W	90		100	O H 890811 08:31:04	161 96 20	46
87	45	USSR-EUROPEAN	KAMA RIVER	54.5N 54.5E	55.1N 52.4E	30	LO	100	N H 890811 08:52:37	162 196 50	46
87	46	USSR-EUROPEAN	KAMA RIVER	56.0N 54.0E	55.0N 53.2E	20	NY	100	N H 890811 08:52:44	162 198 50	46
87	47	CHINA	KUNLUN MOUNTAINS	36.0N 91.0E	37.4N 88.2E	40	LO	100	N H 890811 09:00:29	164 251 46	46
87	48	CHINA	LAKE DABAN	37.0N 95.0E	34.5N 92.6E	50	LO	100	N H 890811 09:01:34	164 257 45	46
87	49	CHINA	YUN MOUNTAINS, LAKE ERN	25.5N 100.5E	27.3N 90.1E	60	LO	100	N H 890811 09:03:50	164 260 40	46
87	50	CHINA	YUN MOUNTAINS, LAKE ERN	25.5N 100.5E	26.0N 96.4E	40	LO	100	N H 890811 09:03:56	164 260 39	46
87	51	MALAYSIA	BORNEO	3.5N 113.5E	6.0N 111.9E	80	LO	100	N H 890811 09:10:19	166 204 23	46
87	52	INDONESIA	BORNEO	0.0 117.5E	0.4S 115.6E	40	LO	100	N H 890811 09:12:14	166 206 17	46
87	53	INDONESIA	BORNEO	0.5S 117.5E	0.8S 115.9E	20	NY	100	N H 890811 09:12:22	166 206 16	46
87	54	INDONESIA	BORNEO	1.6S 117.5E	3.8S 117.6E	70	LO	100	N H 890811 09:13:18	166 207 18	46
87	55	INDONESIA	SULAWESI	5.0S 120.0E	6.5S 119.1E	50	NY	100	N H 890811 09:14:04	166 207 11	46
87	56	INDONESIA	SUMBAWA	8.5S 119.0E	8.5S 120.2E	50	NY	100	N H 890811 09:14:36	166 207 10	46
87	57	INDONESIA	SUMBA	10.0S 120.5E	9.5S 120.9E	20	LO	100	N H 890811 09:14:57	166 207 9	46
87	58	USSR-EUROPEAN	VOLGA RIVER	48.5N 46.0E	49.6N 47.1E	60	LO	100	N H 890811 10:26:17	163 216 51	47
87	59	USSR-EUROPEAN	CASPIAN SEA	47.0N 51.5E	45.6N 54.9E	5	LO	100	N H 890811 10:28:01	163 220 50	47
87	60	USSR-EUROPEAN	VOLGA RIVER DELTA	46.0N 49.0E	45.0N 55.0E	20	HO	100	N H 890811 10:28:15	163 222 50	47
87	61	USSR-EUROPEAN	CASPIAN SEA	45.5N 53.0E	44.6N 56.5E	0	LO	100	N H 890811 10:28:24	163 223 50	47
87	62	USSR-EUROPEAN	SOR BARSAGEL MES	44.0N 57.5E	42.6N 59.4E	10	LO	100	N H 890811 10:29:09	163 229 49	47
87	63	USSR-EUROPEAN	SOR BARSAGEL MES	43.5N 57.0E	42.4N 59.7E	5	LO	100	N H 890811 10:29:14	163 229 49	47
87	64	USSR-EUROPEAN	CASPIAN SEA	42.5N 56.5E	42.1N 60.0E	5	LO	100	N H 890811 10:29:20	163 230 49	47
87	65	USSR-EUROPEAN	LAKE SARYKAMYSKOTE	42.5N 58.0E	43.9N 61.7E	40	LO	100	N H 890811 10:29:48	163 232 48	47
87	66	USSR-EUROPEAN	AMU RIVER, ARAL SEA	42.5N 59.5E	39.0N 62.9E	60	LO	100	N H 890811 10:30:09	163 234 48	47
87	67	USSR-MIDDLE	AMU RIVER	38.5N 64.5E	35.8N 67.5E	10	LO	100	N H 890811 10:31:34	164 254 48	47
87	68	USSR-MIDDLE	AFGHANISTAN BORDER	33.5N 69.5E	35.2N 68.1E	20	LO	100	N H 890811 10:31:46	164 255 45	47
87	69	AFGHANISTAN	MOUNTAINS NORTH OF KABUL	34.0N 69.5E	34.5N 68.8E	10	NY	100	N H 890811 10:32:01	164 257 45	47
87	70	AFGHANISTAN	MOUNTAINS WEST OF KABUL	35.0N 67.5E	33.0N 69.5E	5	LO	100	N H 890811 10:32:15	164 258 45	47
87	71	AFGHANISTAN	MOUNTAINS, LAKES	33.5N 68.0E	32.2N 70.9E	10	LO	100	N H 890811 10:32:45	164 260 44	47
87	72	PAKISTAN	INDUS RIVER	29.5N 70.5E	29.0N 73.7E	30	LO	100	N H 890811 10:33:48	164 265 41	47
87	73	CANADA-NS	BAY OF FUNDY	45.0N 65.0W	45.0N 62.5W	30	LO	100	N H 890811 11:42:17	161 94 26	48
87	74	CANADA-PEI	NORTHUMBERLAND STRAIT	46.0N 63.0W	45.5N 61.7W	20	NY	100	N H 890811 11:42:26	161 95 27	48
87	75	CANADA-NS	CAPE BRETON ISLAND	46.0N 60.5W	46.8N 59.5W	5	NY	100	N Y 890811 11:43:00	161 96 28	48
87	76	CANADA-NS	CAPE BRETON ISLAND	44.5N 61.0W	46.8N 59.5W	5	NY	100	N Y 890811 11:43:03	161 96 28	48
87	77	CANADA-N	LABRADOR	49.0N 57.5W	48.4N 55.8W	5	NY	100	N Y 890811 11:43:47	161 102 30	48
87	78	CANADA-N	LABRADOR	48.5N 58.0W	48.8N 55.5W	30	LO	100	N Y 890811 11:43:52	161 102 30	48
87	79	BRITAIN	HEBRIDES ISLES	57.5N 7.5W	57.0N 8.9W	80	NY	100	N Y 890811 11:51:22	161 162 47	48
87	80	BRITAIN	HEBRIDES ISLES	58.0N 7.0W	57.0N 8.5W	80	NY	100	N Y 890811 11:51:25	161 163 47	48
87	81	BRITAIN	NORTHERN SCOTLAND	58.0N 4.5W	56.8N 6.8W	80	LO	100	N Y 890811 11:51:40	161 165 48	48
87	82	BRITAIN	NORTHERN SCOTLAND	57.0N 5.0W	56.8N 6.3W	80	NY	100	N Y 890811 11:51:44	162 166 48	48
87	83	BRITAIN	NORTHERN SCOTLAND	57.0N 3.5W	56.8N 5.7W	80	LO	100	N Y 890811 11:51:49	162 167 48	48
87	84	BRITAIN	NORTHERN SCOTLAND	56.5N 4.0W	56.8N 5.4W	80	NY	100	N Y 890811 11:51:52	162 167 48	48
87	85	BRITAIN	NORTHERN SCOTLAND	57.0N 2.5W	56.7N 4.5W	80	LO	100	N Y 890811 11:52:00	162 169 48	48
87	86	BRITAIN	NORTHERN SCOTLAND	58.0N 4.0W	56.6N 3.9W	80	NY	100	N Y 890811 11:52:05	162 170 48	48
87	87	BRITAIN	NORTHERN SCOTLAND	57.5N 4.5W	56.6N 3.7W	80	NY	100	N Y 890811 11:52:07	162 170 48	48
87	88	BRITAIN	NORTHERN SCOTLAND	56.5N 5.0W	56.6N 3.3W	80	NY	100	N Y 890811 11:52:10	162 170 48	48



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
87	89	BRITAIN	NORTHERN SCOTLAND	54.5N 3.5W	54.5N 3.0W	80 NV	100 N Y	890811	11:52:13	162 171 49 48
87	90	BRITAIN	NORTHERN SCOTLAND	55.5N 4.0W	54.5N 2.3W	86 NV	100 N Y	890811	11:52:19	162 172 49 48
87	91	BRITAIN	SCOTLAND	55.0N 3.8W	54.4N 1.7W	80 NV	100 N Y	890811	11:52:24	162 173 49 48
87	92	USSR-EUROPEAN	BLACK SEA, ODESSA	46.5N 30.5E	46.6N 30.2E	28 NV	100 N Y	890811	11:58:06	163 227 51 48
87	93	USSR-EUROPEAN	BLACK SEA	46.5N 32.0E	46.5N 30.4E	18 NV	100 N Y	890811	11:58:11	163 227 51 48
87	94	USSR-EUROPEAN	SEA OF AZOV	46.0N 35.0E	43.5N 34.6E	38 LO	100 N Y	890811	11:59:12	163 235 50 48
87	95	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 35.5E	43.7N 34.8E	38 NV	100 N Y	890811	11:59:15	163 235 50 48
87	96	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.0N 36.5E	43.5N 35.2E	38 NV	100 N Y	890811	11:59:21	163 236 50 48
87	97	USSR-EUROPEAN	CRIMEAN PENINSULA	46.0N 34.5E	42.9N 36.1E	56 LO	100 N N	890811	11:59:35	163 238 50 48
87	98	USSR-EUROPEAN	CAUCASUS MOUNTAINS	44.0N 41.0E	42.2N 37.0E	68 LO	100 N N	890811	11:59:50	163 240 49 48
87	99	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 46.0E	41.9N 37.4E	78 HO	100 N N	890811	11:59:56	163 240 49 48
87	100	IRAQ	TURKEY, IRAQ	37.0N 46.0E	41.2N 38.3E	38 HO	100 N N	890811	12:00:11	163 242 49 48
87	101	TURKEY	LAKE VAN	38.5N 43.0E	37.4N 42.8E	28 NV	100 N N	890811	12:01:33	164 251 47 48
87	102	TURKEY	KURDISTAN	38.0N 41.0E	36.4N 43.5E	28 LO	100 N N	890811	12:01:52	164 253 46 48
87	103	IRAQ	TIGRIS RIVER	37.0N 43.5E	35.5N 44.8E	18 NV	100 N N	890811	12:02:12	164 254 46 48
87	104	USA-WI	ILLINOIS BORDER	42.5N 89.8W	42.7N 88.9W	20 NV	100 U N	890811	13:11:54	161 90 23 49
87	105	USA-WI	LAKE MICHIGAN	42.5N 88.6W	43.2N 88.2W	28 NV	100 U N	890811	13:12:04	161 91 24 49
87	106	USA-MI	PARTIAL FRAME, L. MICH.	43.0N 86.6W		18 NV	100 U N			
88	1	USA-IA	FORT DODGE, EAGLE GROVE	42.5N 94.8W	42.7N 93.8W	78 NV	250 N N	890810	20:54:34	163 242 47 38
88	2	USA-MO	OSKALOOSA	41.5N 92.5W	41.1N 91.7W	68 NV	250 N N	890810	20:55:06	163 244 47 38
88	3	USA-MO	ST. LOUIS	38.5N 90.5W	39.5N 89.8W	28 NV	250 N Y	890810	20:55:42	163 250 46 38
88	4	USA-IL	ST. LOUIS	38.5N 90.6W	38.9N 89.8W	58 NV	250 N Y	890810	20:55:56	164 251 45 38
88	5	USA-MO	MISSISSIPPI RIVER	37.0N 89.5W	38.2N 88.2W	88 NV	250 N N	890810	20:56:11	164 252 45 38
88	6	USA-KY	MADISONVILLE	37.5N 87.5W	36.7N 86.6W	28 NV	250 N N	890810	20:56:42	164 253 44 38
88	7	USA-TN	CHATTANOOGA	35.0N 85.5W	35.4N 85.3W	48 NV	250 N N	890810	20:57:09	164 258 43 38
88	8	USA-TN	CHATTANOOGA	35.0N 85.5W	34.9N 84.8W	48 NV	250 N N	890810	20:57:28	164 258 43 38
88	9	USA-GA	GAINESVILLE	34.5N 84.0W	34.0N 83.5W	48 NV	250 N N	890810	20:57:37	164 260 42 38
88	10	USA-GA	BLURRED		32.0N 82.8W		250 N N	890810	20:58:00	164 262 41 38
88	11	BRAZIL	MAMAUAS, AMAZON RIVER	3.0S 60.0W	8.6S 62.6W	48 LO	250 N N	890810	21:00:15	164 286 14 38
88	12	BRAZIL	AMAZON RIVER	2.5S 57.8W	1.7S 59.5W	5 LO	250 N N	890810	21:00:35	164 286 13 38
88	13	BRAZIL	AMAZON RIVER	2.5S 56.5W	2.1S 58.5W	5 LO	250 N N	890810	21:00:42	164 286 13 38
88	14	BRAZIL	BO TAPAJOS	6.0S 57.8W	4.3S 58.2W	18 NV	250 N N	890810	21:00:21	164 287 11 38
88	15	JAPAN	HOKKAIDO, SUNGLIT	43.0N 144.5E	43.2N 143.6E	18 LO	250 N N	890810	22:07:01	161 93 26 32
88	16	JAPAN	HOKKAIDO, SUNGLIT	43.0N 145.0E	43.3N 143.8E	28 LO	250 N N	890810	22:07:05	161 94 27 32
88	17	JAPAN	HOKKAIDO, SUNGLIT	43.4N 145.5E	43.5N 142.8E	48 LO	250 N N	890810	22:07:08	161 94 27 32
88	18	USA-AK	GULF OF ALASKA, CLOUDS	60.0N 142.5W	57.1N 147.3W	88 HO	250 N N	890810	22:16:04	162 158 37 38
88	19	USA-AK	MALASPINA GLACIER	60.0N 142.5W	56.8N 159.3W	58 HO	250 N N	890810	22:17:12	162 171 48 38
88	20	USA-AK	ST. ELIAS MOUNTAINS	58.0N 137.6W	56.8N 159.6W	88 HO	250 N N	890810	22:17:15	162 171 48 38
88	21	USA-WA	CASCADES, MOON	47.0N 120.8W	52.8N 137.6W	78 HO	250 N N	890810	22:20:38	162 225 51 38
88	22	USA-WA	CASCADES, MOON	47.0N 120.6W	52.1N 135.6W	68 HO	250 N N	890810	22:21:01	162 228 51 38
88	23	USA-WA	CASCADES, COLUMBIA BASIN	47.0N 121.8W	50.5N 130.6W	48 LO	250 N N	890810	22:21:56	163 217 50 39
88	24	USA-WA	CASCADES, COLUMBIA BASIN	47.5N 119.6W	48.6N 128.9W	38 LO	250 N N	890810	22:22:16	163 220 50 39
88	25	USA-WA	MOUNT RAINIER, SEATTLE	47.0N 122.5W	49.2N 128.1W	48 LO	250 N N	890810	22:22:27	163 222 50 39
88	26	USA-WA	MOUNT SAINT HELENS	46.0N 122.8W	48.2N 125.9W	18 LO	250 N N	890810	22:22:54	163 225 50 39
88	27	USA-CA	CALIFORNIA	38.0N 121.5W	47.6N 124.9W	48 HO	250 N N	890810	22:23:06	163 227 50 39
88	28	USA-OR	MOUNT HOOD	45.5N 121.5W	46.5N 122.8W	8 NV	250 N N	890810	22:23:34	163 231 49 39
88	29	USA-CA	SACRAMENTO VALLEY	38.0N 122.6W	45.4N 120.9W	28 LO	250 N N	890810	22:24:23	163 234 49 39
88	30	USA-CA	SACRAMENTO VALLEY	39.0N 121.5W	44.9N 120.2W	28 LO	250 N N	890810	22:24:34	163 236 49 39
88	31	USA-NM	RIO GRANDE, WHITE SANDS	33.0N 107.0W	37.7N 110.7W	46 LO	250 N N	890810	22:25:52	164 253 45 39
88	32	USA-NM	RIO GRANDE	32.5N 107.5W	34.9N 107.7W	5 LO	250 N N	890810	22:27:51	164 258 43 39
88	33	SPAIN	STRAIT OF GIBRALTAR	36.3N 5.5W	35.2N 5.8W	38 NV	250 N N	890811	07:07:20	161 83 16 45
88	34	SPAIN	ROTA	37.0N 6.5W	36.0N 5.6W	28 NV	250 N N	890811	07:07:34	161 83 17 45
88	35	SPAIN	MOUNTAINS	38.0N 3.0W	36.6N 4.3W	8 NV	250 N N	890811	07:07:49	161 84 18 45
88	36	SPAIN	PYRENEES	42.0N 1.0E	41.2N 1.0E	28 NV	250 N N	890811	07:09:26	161 89 23 45
88	37	FRANCE	SPAIN, ANDORRA	42.5N 2.0E	41.8N 1.8E	5 NV	250 N Y	890811	07:09:34	161 90 23 45
88	38	ANDORRA	SPAIN, FRANCE	42.5N 1.5E	42.0N 2.0E	18 NV	250 N Y	890811	07:09:42	161 90 23 45
88	39	FRANCE	SPAIN, MEDITERRANEAN SEA	42.5N 3.0E	42.2N 2.3E	38 NV	250 N N	890811	07:09:47	161 91 24 45
88	40	FRANCE	ALPS	44.5N 6.5E	44.0N 4.9E	28 NV	250 N Y	890811	07:10:28	161 93 26 45
88	41	FRANCE	ALPS	44.5N 6.5E	44.2N 5.2E	48 NV	250 N Y	890811	07:10:33	161 94 26 45
88	42	ITALY	ALPS	44.5N 7.6E	44.2N 5.4E	28 NV	250 N Y	890811	07:10:36	161 94 26 45
88	43	SWITZERLAND	ALPS	47.0N 8.0E	45.9N 8.0E	70 NV	250 N N	890811	07:11:14	161 97 28 45
88	44	FED REP OF GERMANY	ALPS	47.5N 13.0E	47.1N 9.9E	70 LO	250 N N	890811	07:11:41	161 99 29 45
88	45	AUSTRIA	ALPS	47.5N 13.5E	47.2N 10.2E	40 LO	250 N N	890811	07:11:44	161 99 29 45
88	46	AUSTRIA	ALPS	47.5N 14.0E	47.4N 10.5E	40 LO	250 N N	890811	07:11:49	161 100 29 45
88	47	CLOUDS	CLOUDS, AIRFIELD		47.7N 11.2E	90	250 N N	890811	07:11:58	161 100 30 45
88	48	AUSTRIA	ALPS	47.5N 13.5E	49.2N 14.2E	28 LO	250 N N	890811	07:12:37	161 104 32 45
88	49	AUSTRIA	ALPS	47.5N 14.0E	49.3N 14.5E	28 LO	250 N N	890811	07:12:40	161 104 32 45
88	50	USSR-EUROPEAN	SNOKESTACK	52.5N 25.0E	51.8N 20.4E	58 LO	250 N N	890811	07:13:53	161 111 35 45
88	51	USSR-EUROPEAN	SNOKESTACK	52.5N 25.0E	53.0N 24.3E	18 NV	250 N N	890811	07:14:33	161 116 37 45
88	52	USSR-EUROPEAN	AGRICULTURE		53.8N 27.2E	5 LO	250 N N	890811	07:15:03	161 120 38 45



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON		NADIR LAT LON		CC	TL	FL	E & DATE	GMT	SUN AL AZ EL OR
88	53	USSR-EUROPEAN	KAMA RIVER	56.0N	52.0E	57.1N	51.9E	18	HV	250	N Y 890811	07:18:47	161 152 46 45
88	54	USSR-EUROPEAN	KAMA RIVER	56.0N	53.0E	57.1N	52.2E	5	NV	250	N Y 890811	07:18:48	161 153 46 45
88	55	USSR-EUROPEAN	KAMA RIVER	56.0N	53.5E	57.1N	52.5E	5	NV	250	N Y 890811	07:18:52	161 153 46 45
88	56	USSR-EUROPEAN	KAMA RIVER	56.0N	54.0E	57.1N	52.8E	5	NV	250	N Y 890811	07:18:55	161 154 46 45
88	57	USSR-EUROPEAN	KAMA RIVER	56.5N	54.0E	57.2N	53.6E	5	NV	250	N Y 890811	07:19:01	161 155 46 45
88	58	USSR-EUROPEAN	KAMA RIVER	56.5N	54.0E	57.2N	53.9E	5	NV	250	N Y 890811	07:19:04	161 155 46 45
88	59	USSR-EUROPEAN	KAMA RIVER	57.0N	54.5E	57.2N	54.3E	5	NV	250	N Y 890811	07:19:07	161 155 46 45
88	60	USSR-EUROPEAN	KAMA RIVER	57.0N	55.0E	57.2N	54.6E	5	NV	250	N Y 890811	07:19:10	161 156 46 45
88	61	USSR-EUROPEAN	KAMA RIVER	57.0N	54.5E	57.1N	55.7E	5	NV	250	N Y 890811	07:19:19	161 157 47 45
88	62	USSR-EUROPEAN	KAMA RIVER	57.5N	55.0E	57.1N	56.1E	5	NV	250	N Y 890811	07:19:23	161 158 47 45
88	63	USSR-EUROPEAN	KAMA RIVER	57.5N	55.5E	57.1N	57.0E	5	NV	250	N Y 890811	07:19:30	161 159 47 45
88	64	USSR-EUROPEAN	KAMA RIVER	58.0N	55.5E	57.1N	57.3E	5	NV	250	N Y 890811	07:19:33	161 160 47 45
88	65	USSR-EUROPEAN	KAMA RIVER	58.5N	56.0E	57.1N	57.8E	18	HV	250	N Y 890811	07:19:37	161 160 47 45
88	66	USSR-EUROPEAN	KAMA RIVER	59.0N	56.5E	57.1N	58.1E	20	NV	250	N Y 890811	07:19:41	161 161 47 45
88	67	USSR-MIDDLE	ASBEST	57.0N	61.5E	56.9N	61.2E	60	NV	250	N N 890811	07:20:06	161 165 48 45
88	68	USSR-MIDDLE	TYUMEN	57.0N	65.5E	56.5N	66.1E	70	NV	250	N Y 890811	07:20:48	162 173 49 45
88	69	USSR-MIDDLE	TYUMEN	57.0N	65.0E	56.4N	67.0E	70	NV	250	N Y 890811	07:20:57	162 174 49 45
88	70	USSR-MIDDLE	IRTYSH RIVER, OMSK	55.0N	73.5E	55.2N	75.3E	80	LO	250	N N 890811	07:22:13	162 187 50 45
88	71	USSR-MIDDLE	NOVOSIBIRSKOYE RESERVOIR	54.5N	82.0E	54.2N	79.7E	70	LO	250	N N 890811	07:22:33	162 194 51 45
88	72	USSR-MIDDLE	AGRICULTURE	54.0N	81.0E	54.0N	80.5E	80	NV	250	N N 890811	07:22:34	162 195 51 45
88	73	USSR-MIDDLE	AGRICULTURE	53.5N	80.5E	53.2N	81.3E	70	NV	250	N N 890811	07:23:12	162 197 51 45
88	74	USSR-MIDDLE	AGRICULTURE	54.0N	81.0E	53.5N	82.4E	80	NV	250	N N 890811	07:23:23	162 198 51 45
88	75	USSR-MIDDLE	AGRICULTURE	54.0N	81.0E	53.3N	82.8E	80	LO	250	N N 890811	07:23:28	162 199 51 45
88	76	USSR-MIDDLE	AGRICULTURE	52.0N	83.5E	52.8N	84.6E	60	NV	250	N N 890811	07:23:46	162 202 51 45
88	77	USSR-MIDDLE	AGRICULTURE	52.0N	85.0E	52.7N	84.9E	50	NV	250	N N 890811	07:23:49	162 203 51 45
88	78	USSR-MIDDLE	MTNS/AG N. OF MONGOLIA	51.0N	90.5E	50.6N	91.4E	60	NV	250	N N 890811	07:25:02	162 214 51 45
88	79	MONGOLIA	LAKE OGII	48.0N	103.5E	47.7N	97.2E	20	LO	250	N N 890811	07:26:15	163 226 51 45
88	80	MONGOLIA	LAKE ADGYN TSAAGAN	45.5N	100.0E	47.2N	96.2E	20	LO	250	N N 890811	07:26:26	163 226 50 45
88	81	MONGOLIA	LAKE BOONTSAGAAN	44.0N	99.5E	47.1N	96.3E	30	LO	250	N N 890811	07:26:31	163 227 50 45
88	82	ASIA	MONGOLIA, CHINA			44.8N	102.2E	5		250	N N 890811	07:27:26	163 234 50 45
88	83	ASIA	MONGOLIA, CHINA			42.1N	106.0E	20		250	N N 890811	07:28:26	163 241 49 45
88	84	CHINA	YELLOW RIVER	35.0N	113.0E	36.3N	112.9E	20	NV	250	N N 890811	07:30:29	164 254 46 45
88	85	CHINA	YELLOW RIVER	35.0N	113.5E	36.1N	113.1E	30	NV	250	N N 890811	07:30:33	164 254 45 45
88	86	CHINA	CLOUDS			35.0N	113.4E	60		250	N N 890811	07:30:36	164 255 45 45
88	87	CHINA	CLOUDS			34.5N	113.8E	60		250	N N 890811	07:31:37	164 257 44 45
88	88	CHINA	LAKE WABO	32.0N	117.0E	32.0N	116.3E	10	NV	250	N N 890811	07:31:38	164 260 43 45
88	89	CHINA	LAKE CHAO, HEFEI	32.0N	117.0E	31.5N	117.5E	5	NV	250	N N 890811	07:32:05	164 262 42 45
88	90	CHINA	YANGTZE RIVER	31.6N	118.0E	31.2N	117.8E	10	NV	250	N N 890811	07:32:12	164 262 42 45
88	91	CHINA	YANGTZE RIVER	32.0N	120.0E	30.0N	118.1E	20	LO	250	N N 890811	07:32:18	164 263 42 45
88	92	CHINA	HANGZHOU	30.5N	120.0E	30.0N	118.8E	30	NV	250	N N 890811	07:32:35	164 264 41 45
88	93	CHINA	COASTLINE	27.5N	120.5E	28.4N	119.3E	20	LO	250	N N 890811	07:32:46	164 265 41 45
88	94	CHINA	COASTLINE	27.5N	122.5E	28.3N	119.4E	20	NV	250	N Y 890811	07:32:49	164 265 41 45
88	95	CHINA	COASTLINE	28.0N	121.0E	28.1N	119.6E	20	NV	250	N Y 890811	07:32:52	164 265 41 45
88	96	CHINA	COASTLINE	28.0N	121.0E	28.0N	119.7E	20	NV	250	N Y 890811	07:32:55	164 266 41 45
88	97	CHINA	COASTLINE	28.5N	121.5E	28.6N	120.0E	10	NV	250	N Y 890811	07:33:01	164 266 40 45
88	98	CHINA	COASTLINE	28.0N	121.5E	28.4N	120.1E	10	NV	250	N Y 890811	07:33:05	164 266 40 45
88	99	CHINA	COASTLINE	25.5N	119.5E	26.7N	121.5E	20	LO	250	N N 890811	07:33:38	164 268 38 45
88	100	CHINA	COASTLINE	24.0N	118.0E	25.5N	122.4E	60	LO	250	N N 890811	07:34:00	165 270 38 45
88	101	ATLANTIC OCEAN	CLOUDS			39.6N	23.9W	90	HO	250	N N 890811	08:39:23	161 87 21 46
88	102	ATLANTIC OCEAN	CLOUDS			25.5N	60.1W	90	LO	250	N N 890811	18:05:14	161 76 6 47
88	103	CANADA-NS	CHODOBUCTO BAY	45.5N	61.5W	46.1N	60.7W	0	NV	250	U N 890811	11:42:51	161 96 27 48
88	104	CANADA-Q	ILES DE LA MADELEINE	47.5N	61.5W	47.3N	58.5W	0	LO	250	N N 890811	11:43:21	161 99 29 48
88	105	CANADA-N	VICTORIA LAKE	48.5N	57.5W	48.6N	57.2W	10	NV	250	N N 890811	11:47:39	161 100 30 48
88	106	BRITAIN	FIRTH OF FORTH/LEITHBURGH	56.0N	3.5W	56.1N	0.4E	70	LO	250	N N 890811	11:52:51	162 176 49 48
88	107	BRITAIN	CLOUDS-PARTIAL FRAME	55.0N	3.6W			80	LO	250	N N		
88	1	AFRICA	SAHARA-SANDSTORM			38.4N	3.4E	40	HO	100	N N 890810	16:53:55	164 253 44 34
88	2	AFRICA	SAHARA-SANDSTORM			38.2N	3.7E	40	HO	100	N N 890810	16:54:00	164 254 44 34
88	3	AFRICA	SAHARA-SANDSTORM			38.0N	3.9E	50	HO	100	N N 890810	16:54:04	164 254 44 34
88	4	AFRICA	SAHARA-SANDSTORM			37.9N	4.0E	60	HO	100	N N 890810	16:54:07	164 254 44 34
88	5	AFRICA	SAHARA-SANDSTORM			37.8N	4.2E	90	HO	100	N N 890810	16:54:09	164 254 44 34
88	6	AFRICA	SAHARA-SANDSTORM			37.1N	4.9E	60	LO	100	N N 890810	16:54:23	164 256 43 34
88	7	AFRICA	SAHARA-SANDSTORM			36.7N	5.3E	20	HO	100	N N 890810	16:54:31	164 256 43 34
88	8	AFRICA	SAHARA-SANDSTORM			36.6N	5.5E	30	HO	100	N N 890810	16:54:34	164 257 43 34
88	9	AFRICA	SAHARA-SANDSTORM			36.4N	5.7E	40	HO	100	N N 890810	16:54:38	164 257 43 34
88	10	AFRICA	SAHARA-SANDSTORM			36.2N	5.8E	60	HO	100	N N 890810	16:54:41	164 257 43 34
88	11	AFRICA	SAHARA-SANDSTORM			36.1N	6.0E	80	HO	100	N N 890810	16:54:44	164 257 42 34
88	12	AFRICA	SAHARA-SANDSTORM			35.9N	6.1E	80	HO	100	N N 890810	16:54:47	164 258 42 34
88	13	AFRICA	SAHARA-SANDSTORM			35.7N	6.5E	90	HO	100	N N 890810	16:54:52	164 258 42 34
88	14	ALGERIA	GRAND ERG ORIENTAL	27.5N	7.0E	34.0N	7.1E	30	HO	100	N N 890810	16:55:07	164 259 42 34
88	15	LIBYA	MARZUQ SAND SEAL	27.5N	11.5E	31.4N	10.5E	30	LO	100	N N 890810	16:56:10	164 265 39 34

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC	TL	FL	E	R	DATE	GMT	AL	AZ	EL	OR
89	16	LIBYA	MARZUQ SAND SEAL	26.0N 13.0E	30.5N 11.2E	30	HO	100	N	N	890810	14:54:35	164	264	39	34
89	17	LIBYA	MARZUQ SAND SEAL	26.0N 13.0E	29.2N 12.3E	18	LO	100	N	N	890810	14:54:50	164	267	38	34
89	18	LIBYA	KURDI OUAN KASA	25.0N 10.5E	27.1N 14.9E	38	LO	100	N	N	890810	14:57:48	164	270	34	34
89	19	LIBYA	MARZUQ SAND SEA	24.0N 13.0E	26.1N 14.7E	34	LO	100	N	N	890810	14:57:58	164	271	35	34
89	20	AFRICA	CLOUDS		25.8N 15.8E	50	LO	100	N	N	890810	14:58:05	165	271	35	34
89	21	AFRICA	CLOUDS		23.8N 16.5E	80	LO	100	N	N	890810	14:58:42	165	273	33	34
89	22	AFRICA	CLOUDS		23.6N 16.6E	70	LO	100	N	N	890810	14:58:46	165	274	33	34
89	23	AFRICA	CLOUDS		18.4N 20.2E	70	HO	100	N	N	890810	15:00:22	165	278	29	34
89	24	AFRICA	CLOUDS		17.2N 21.0E	70	HO	100	N	N	890810	15:00:44	165	279	28	34
89	25	PACIFIC OCEAN	CLOUDS		30.4N 148.0W	96	HO	100	N	N	890810	15:00:27	161	81	15	35
89	26	USA-CA	CLOUDS ALONG COASTLINE	37.5N 122.8W	44.3N 130.3W	78	HO	100	N	N	890810	16:03:47	161	90	25	35
89	27	USA-CA	SACRAMENTO VALLEY	38.0N 122.8W	42.0N 128.1W	60	HO	100	N	N	890810	16:04:24	161	92	26	35
89	28	USA-CA	MOUNT SHASTA	41.5N 122.8W	43.7N 125.7W	60	LO	100	N	N	890810	16:05:02	162	95	28	35
89	29	USA-CA	MOUNT SHASTA	41.5N 122.5W	44.0N 125.7W	40	LO	100	N	N	890810	16:05:18	161	96	28	35
89	30	USA-OR	CASCADES	44.0N 122.5W	44.9N 123.3W	48	LO	100	N	N	890810	16:05:38	161	97	29	35
89	31	USA-OR	CASCADES	43.8N 120.5W	45.1N 123.6W	30	LO	100	N	N	890810	16:05:34	161	98	29	35
89	32	USA-OR	CENTRAL OREGON	44.5N 119.5W	44.4N 121.4W	59	LO	100	N	N	890810	16:06:06	161	100	31	35
89	33	USA-ID	SPOKANE, SNAKE RIVER	46.5N 116.5W	47.2N 118.9W	30	LO	100	N	N	890810	16:06:27	161	102	32	35
89	34	USA-WT	FLATHEAD LAKE	48.0N 112.5W	47.5N 119.4W	48	LO	100	N	N	890810	16:06:34	161	103	32	35
89	35	USA-WA	SPORANE	47.5N 117.5W	47.8N 118.8W	54	NV	100	N	N	890810	16:06:42	161	103	32	35
89	36	USA-WT	FLATHEAD LAKE	48.0N 114.5W	48.4N 117.6W	30	LO	100	N	N	890810	16:06:57	161	105	33	35
89	37	USA-WT	FLATHEAD LAKE	47.5N 113.5W	48.8N 116.9W	20	LO	100	N	N	890810	16:07:06	161	106	33	35
89	38	USA-WT	FLATHEAD LAKE	48.0N 114.5W	48.5N 115.7W	20	NV	100	N	N	890810	16:07:27	161	108	34	35
89	39	CANADA-A	AGRICULTURE	50.5N 112.0W	50.9N 112.1W	5	NV	100	N	N	890810	16:08:05	161	111	36	35
89	40	CANADA-S	LAKE DEFENSAKER	51.0N 106.0W	52.4N 107.9W	10	NV	100	N	N	890810	16:08:52	161	117	38	35
89	41	USA-MT	SASKATCHEWAN, MONTANA	47.5N 103.5W	52.8N 106.7W	54	HO	100	N	N	890810	16:09:05	161	118	38	35
89	42	CANADA-M	LAKE WINNIPEG, MANITOBA	50.5N 97.5W	53.0N 97.7W	30	LO	100	N	N	890810	16:10:35	161	130	42	35
89	43	CANADA-M	L. WINNIPEG, COBHAM RIVER	54.0N 95.0W	55.5N 95.4W	78	LO	100	N	N	890810	16:10:57	161	133	42	35
89	44	CANADA-M	HUDSON BAY, NELSON RIVER	57.0N 91.0W	56.1N 91.8W	40	NV	100	N	N	890810	16:11:30	161	138	43	35
89	45	MADEIRA ISLANDS	ISLAND WAKE	33.0N 16.5W	32.7N 17.7W	30	LO	100	N	N	890810	16:26:23	164	253	48	35
89	46	CANARY ISLANDS	DIST. STORM, FUERTEVENTURA	29.0N 14.0W	30.6N 11.8W	48	LO	100	N	N	890810	16:27:05	164	264	39	35
89	47	NIGERIA	LACOS	6.5N 3.0E	6.2N 4.7E	30	NV	100	N	N	890810	16:34:35	163	284	19	35
89	48	CANADA-Q	LAC A L'EAG CLARE	56.0N 75.5W	55.2N 78.3W	90	LO	100	N	N	890810	17:47:21	162	191	50	36
89	49	CANADA-Q	LAC A L'EAG CLARE	56.0N 76.5W	54.8N 76.2W	90	LO	100	N	N	890810	17:47:41	162	194	50	36
89	50	CANADA-Q	LAC A L'EAG CLARE	56.0N 76.5W	54.7N 75.7W	90	NV	100	N	N	890810	17:47:46	162	195	50	36
89	51	CANADA-Q	RIVIERE CAMPAUSCAS	54.5N 78.0W	53.4N 75.6W	40	NV	100	N	N	890810	17:48:39	162	204	50	36
89	52	CANADA-Q	RIVIERE CAMPAUSCAS	54.5N 78.0W	53.3N 75.3W	40	NV	100	N	N	890810	17:48:43	162	204	50	36
89	53	CANADA-N	LABRADOR CITY	53.0N 67.0W	52.5N 67.5W	80	NV	100	N	N	890810	17:49:10	162	209	50	36
89	54	CANADA-N	CLOUDS	52.0N 65.0W	52.1N 64.2W	80	NV	100	N	N	890810	17:49:24	162	211	50	36
89	55	CANADA-N	CLOUDS	52.0N 64.5W	51.9N 63.7W	80	NV	100	N	N	890810	17:49:53	162	212	50	36
89	56	CANADA-N	CLOUDS	52.0N 64.5W	51.3N 64.2W	80	NV	100	N	N	890810	17:49:47	162	214	50	36
89	57	CANADA-Q	DETROIT JACQUES-CARTIER	50.5N 64.0W	51.2N 63.5W	30	NV	100	N	N	890810	17:49:51	162	215	50	36
89	58	CANADA-Q	DETROIT JACQUES-CARTIER	50.5N 63.5W	51.1N 63.5W	20	LO	100	N	N	890810	17:49:54	162	215	50	36
89	59	CANADA-Q	RIVIERE NATASHOUAN	50.5N 62.5W	51.0N 63.4W	20	NV	100	N	N	890810	17:49:54	162	216	50	36
89	60	CANADA-Q	RIVIERE NATASHOUAN	50.5N 61.5W	50.9N 63.1W	20	NV	100	N	N	890810	17:49:58	162	218	50	36
89	61	CANADA-N	STRAIT OF BELLE ISLE	50.5N 57.0W	50.9N 60.9W	10	LO	100	N	N	890810	17:50:25	162	220	50	36
89	62	CANADA-N	LONG RANGE MOUNTAINS	49.5N 57.0W	49.8N 60.5W	10	LO	100	N	N	890810	17:50:30	163	221	50	36
89	63	CANADA-N	GULF ST. LAWRENCE COAST	49.5N 57.5W	49.7N 60.3W	20	LO	100	N	N	890810	17:50:33	163	221	50	36
89	64	CANADA-N	GULF ST. LAWRENCE COAST	49.0N 57.5W	49.6N 60.6W	20	LO	100	N	N	890810	17:50:34	163	221	50	36
89	65	CANADA-N	GULF ST. LAWRENCE COAST	48.5N 58.0W	49.5N 59.1W	20	LO	100	N	N	890810	17:50:39	163	222	50	36
89	66	CANADA-N	ST. GEORGE'S BAY	48.5N 58.5W	49.1N 58.5W	10	NV	100	N	N	890810	17:50:50	163	223	50	36
89	67	CANADA-N	ST. GEORGE'S BAY	48.5N 58.5W	48.9N 58.5W	20	NV	100	N	N	890810	17:50:55	163	224	50	36
89	68	CANADA-N	SAY OF ISLANDS	49.0N 58.0W	48.4N 57.7W	30	NV	100	N	N	890810	17:51:05	163	225	49	36
89	69	CANADA-N	BAY OF ISLANDS	49.0N 57.5W	48.4N 57.4W	20	NV	100	N	N	890810	17:51:09	163	226	49	36
89	70	CANADA-N	CABOT STRAIT	47.5N 58.0W	47.8N 56.2W	30	LO	100	N	N	890810	17:51:25	163	228	49	36
89	71	CANADA-N	AYALON PENINSULA	47.0N 53.5W	47.4N 55.5W	40	LO	100	N	N	890810	17:51:34	163	229	49	36
89	72	CANADA-N	AYALON PENINSULA	47.5N 53.5W	47.3N 55.2W	50	LO	100	N	N	890810	17:51:38	163	230	49	36
89	73	CANADA-N	BURN PENINSULA	47.0N 53.0W	47.0N 54.7W	50	NV	100	N	N	890810	17:51:45	163	231	49	36
89	74	CANADA-N	AYALON PENINSULA	48.0N 54.0W	46.9N 54.5W	40	NV	100	N	N	890810	17:51:48	163	231	49	36
89	75	CAPE VERDE ISLANDS	SANTIAGO, FOGO, BRAVA	15.0N 24.5W	15.7N 24.6W	30	NV	100	N	N	890810	18:02:15	165	280	27	36
89	76	CAPE VERDE ISLANDS	BOA VISTA, SAL, MAJO	16.0N 23.0W	15.4N 23.1W	20	NV	100	N	N	890810	18:02:20	165	280	27	36
89	77	CAPE VERDE ISLANDS	SANTIAGO, FOGO, MAJO, BRAVA	15.0N 24.0W	14.5N 23.3W	30	NV	100	N	N	890810	18:02:36	165	280	26	36
89	78	CAPE VERDE ISLANDS	SANTIAGO, FOGO, MAJO, BRAVA	14.0N 23.5W	12.5N 22.1W	30	LO	100	N	N	890810	18:03:12	165	281	25	36
89	79	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		4.3S 151.3E		HO	100	N	N	890810	18:50:57	162	75	18	36
89	80	ATMOSPHERIC LIMB	SUNRISE		3.4S 151.8E		HO	100	N	N	890810	18:51:13	162	75	17	36
89	81	USA-AK	GULF OF ALASKA, CLOUDS		54.3N 147.0W		90	100	N	N	890810	19:11:04	161	125	40	37
89	82	USA-AK	MALASPINA GLACIER	60.0N 141.0W	56.2N 137.1W	50	HO	100	N	N	890810	19:12:39	161	134	43	37
89	83	USA-AK	MALASPINA GLACIER	61.5N 141.0W	56.3N 136.6W	30	HO	100	N	N	890810	19:12:43	161	144	44	37
89	84	CANADA-YT	MOUNTAINS, LAKES	61.5N 136.0W	56.6N 133.0W	20	HO	100	N	N	890810	19:13:15	161	144	44	37
89	85	CANADA-BC	ALASKA	59.0N 133.5W	56.3N 131.4W	10	LO	100	N	N	890810	19:13:20	161	146	45	37

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	BUN AL AZ EL OR
89	96	CANADA-BC	ATLIN LAKE, TESLIN LAKE	59.5N 132.5W	54.9N 129.8W	40 LO	100 N H 890810	19:13:43	161 148 45 37
89	97	CANADA-YT	TESLIN LAKE, MOUNTAINS	61.8N 131.8W	57.8N 127.1W	40 HO	100 N H 890810	19:14:06	161 152 46 37
89	98	CANADA-NT	SELWYN MOUNTAINS	62.5N 128.8W	57.1N 125.6W	40 HO	100 N H 890810	19:14:19	161 154 46 37
89	99	CANADA-NT	GREAT SLAVE LAKE	62.8N 111.8W	56.7N 111.4W	50 HO	100 N H 890810	19:16:25	162 175 49 37
89	90	CANADA-NT	LAKE ATHABASCA	59.5N 109.5W	56.3N 107.9W	40 LO	100 N H 890810	19:16:52	162 186 49 37
89	91	CANADA-NT	MUELTHN LAKE	60.8N 99.8W	54.8N 99.8W	60 HO	100 N H 890810	19:18:14	162 194 50 37
89	92	CANADA-M	MUDSON BAY	57.8N 90.8W	51.3N 87.2W	50 HO	100 N H 890810	19:20:18	162 214 50 37
89	93	CANADA-M	CLOUDS	55.8N 85.8W	49.3N 82.2W	90 HO	100 N H 890810	19:21:17	163 222 50 37
89	94	CANADA-O	CLOUDS	53.8N 88.8W	46.9N 77.6W	90 HO	100 N H 890810	19:22:18	163 231 49 37
89	95	ATLANTIC OCEAN	CLOUDS		13.3N 43.5W	90 HO	100 N H 890810	19:33:30	165 281 26 37
89	96	ATLANTIC OCEAN	CLOUDS		11.4N 44.1W	90 HO	100 N H 890810	19:34:04	165 282 24 37
89	97	ATLANTIC OCEAN	CLOUDS		9.4N 43.2W	90 HO	100 N H 890810	19:34:40	165 283 22 37
89	98	USA-AK	BRADY GLACIER	58.8N 134.5W	56.3N 135.7W	20 NV	100 N H 890810	20:46:41	162 172 49 38
89	99	USA-WA	CASCADES	47.8N 121.8W	55.2N 123.9W	30 HO	100 N H 890810	20:48:27	162 190 50 38
89	100	USA-WA	COGUMBA RIVER BASIN	46.5N 117.5W	54.9N 118.7W	70 HO	100 N H 890810	20:49:18	162 199 50 38
89	101	CANADA-S	LAKE DIEFENBAKER	51.8N 107.8N	50.3N 104.5W	40 NV	100 N H 890810	20:51:11	162 216 50 38
89	102	USA-NO	LAKE SAKAKAWEA	47.5N 101.5W	47.3N 102.2W	30 NV	100 N Y 890810	20:52:27	163 227 50 38
89	103	USA-NO	LAKE SAKAKAWEA	47.5N 101.5W	47.4N 101.5W	30 NV	100 N Y 890810	20:52:37	163 228 49 38
89	104	USA-NO	MINNESOTA, SOUTH DAKOTA	46.8N 97.8W	44.8N 94.9W	50 NV	100 N H 890810	20:53:42	163 237 48 38
89	105	USA-IA	MISSOURI RIVER, OMAHA	41.5N 95.5W	43.4N 94.9W	90 LO	100 N H 890810	20:54:13	163 248 48 38
89	106	USA-IA	CLOUDS, AGRICULTURE	41.5N 92.5W		70	100 N H		
90	1	USA-OH	OHIO RIVER	38.5N 82.5W	38.1N 80.6W	70 LO	250 N H 890812	19:42:07	163 241 52 69
90	2	USA-WV	OHIO RIVER	39.8N 82.8W	38.6N 80.5W	80 LO	250 N H 890812	19:42:09	163 242 52 69
90	3	USA-WV	CLARKSBURG	39.8N 80.5W	37.9N 80.3W	50 NV	250 N H 890812	19:42:12	163 242 52 69
90	4	USA-WV	WHITE SULPHUR SPRINGS	37.5N 80.5W	37.5N 79.5W	30 NV	250 N H 890812	19:42:13	163 243 52 69
90	5	USA-OH	GHEO RIVER	38.8N 84.8W	37.1N 78.4W	80 LO	250 N H 890812	19:42:28	163 244 52 69
90	6	USA	CLOUDS, APPALACHIAN MTS.		36.9N 79.2W	80 LO	250 N H 890812	19:42:33	163 244 52 69
90	7	JAPAN	O-SHIMA, SMOKE	34.5N 139.5E	34.5N 139.8E	20 NV	250 U Y 890812	20:49:52	160 78 8 70
90	8	JAPAN	O-SHIMA, SMOKE	34.5N 139.5E	35.8N 139.5E	20 NV	250 U Y 890812	20:50:02	160 78 9 70
90	9	JAPAN	TOKYO	35.5N 140.8E	35.7N 142.2E	10 NV	250 N H 890812	20:50:16	160 79 10 70
90	10	USSR-PACIFIC	KURL ISLANDS	47.8N 152.8E	45.5N 152.7E	70 NV	250 N Y 890812	20:53:48	160 90 21 70
90	11	USSR-PACIFIC	KURL ISLANDS	47.8N 152.5E	46.2N 153.8E	70 NV	250 N Y 890812	20:54:04	160 91 22 70
90	12	USA-AK	ALEUTIAN RANGE	58.8N 155.8W	57.1N 158.8W	40 LO	250 N H 890812	21:02:04	161 166 44 70
90	13	USA-AK	ALEUTIAN RANGE	58.5N 155.8W	57.1N 158.4W	20 LO	250 N H 890812	21:02:08	161 167 44 70
90	14	USA-AK	ALEUTIAN RANGE	58.5N 155.5W	57.1N 157.8W	20 LO	250 N H 890812	21:02:13	161 168 44 70
90	15	USA-AK	ALEUTIAN RANGE	58.8N 153.5W	57.8N 154.8W	40 LO	250 N H 890812	21:02:45	161 152 45 70
90	16	USA-AK	ALEUTIAN RANGE	58.8N 155.8W	56.8N 153.2W	30 LO	250 N H 890812	21:02:52	161 154 46 70
90	17	USA-MT	FLATHEAD LAKE	47.5N 114.9W	47.4N 116.8W	30 LO	250 N H 890812	21:09:07	162 213 54 70
90	18	USA-MT	FLATHEAD LAKE	48.8N 114.8W	47.6N 116.1W	10 LO	250 N H 890812	21:09:17	162 214 54 70
90	19	USA-UT	GREAT SALT LAKE	41.5N 112.8W	43.4N 110.3W	30 LO	250 N H 890812	21:10:42	163 226 54 70
90	20	USA-UT	GREAT SALT LAKE	41.6N 112.8W	43.2N 110.8W	40 LO	270 N H 890812	21:10:47	163 227 54 70
90	21	USA-CO	AGRICULTURE, CLOUDS		40.8N 106.9W	80	250 N H 890812	21:11:38	163 234 53 70
90	22	USA-CO	COLORADO RIVER	38.8N 108.5W	40.6N 106.5W	60 LO	250 N H 890812	21:11:44	163 234 53 70
90	23	USA-CO	AGRICULTURE, ARKANSAS R.	38.8N 104.8W	37.5N 102.9W	60 NV	250 N H 890812	21:12:50	163 242 52 70
90	24	USA-CO	AGRICULTURE, ARKANSAS R.	38.8N 103.5W	37.3N 102.6W	70 NV	250 N H 890812	21:12:54	163 243 52 70
90	25	USA-TX	DALLAS, FT. WORTH	32.8N 97.8W	33.2N 98.4W	50 LO	250 N H 890812	21:14:16	164 252 50 70
90	26	USA-TX	WACO	31.5N 97.8W	32.8N 98.2W	30 NV	250 N H 890812	21:14:23	164 253 50 70
90	27	USA-TX	FORT HOOD	31.8N 98.8W	32.5N 97.9W	60 NV	250 N Y 890812	21:14:31	164 253 50 70
90	28	USA-TX	TEMPLE, FORT HOOD	31.8N 97.5W	32.1N 97.5W	20 NV	250 N Y 890812	21:14:39	164 254 50 70
90	29	USA-TX	HOUSTON	30.8N 95.5W	34.2N 95.9W	50 NV	250 N Y 890812	21:15:15	164 258 49 70
90	30	USA-TX	HOUSTON	29.5N 95.8W	29.7N 95.4W	60 NV	250 N Y 890812	21:15:25	164 259 49 70
90	31	USA-TX	GALVESTON	29.5N 95.8W	29.3N 95.1W	50 NV	250 N Y 890812	21:15:32	164 259 48 70
90	32	USA-TX	FREEPORT	29.8N 95.5W	29.8N 94.1W	20 NV	250 N H 890812	21:15:39	164 260 48 70
90	33	USA-TX	PORT ARTHUR	29.5N 94.8W	28.6N 94.5W	20 NV	250 N H 890812	21:15:46	164 260 48 70
90	34	MEXICO	ARRECFE ALACRAN	22.5N 89.5W	23.8N 90.9W	50 LO	250 N H 890812	21:17:16	164 267 45 70
90	35	MEXICO	MERIDA	21.5N 90.8W	23.3N 90.5W	50 LO	250 N H 890812	21:17:27	164 264 44 70
90	36	MEXICO	YUCATAN PENINSULA	21.5N 88.8W	22.9N 90.2W	40 LO	250 N H 890812	21:17:34	164 269 44 70
90	37	MEXICO	MERIDA	21.8N 89.5W	21.6N 89.3W	40 NV	250 N H 890812	21:17:56	164 270 43 70
90	38	BELIZE	BEUZE CITY, TURNERFE IS.	17.5N 88.8W	18.8N 87.4W	30 NV	250 N H 890812	21:18:50	165 274 41 70
90	39	HONDURAS	ISLAS DE LA BAHIA	16.5N 86.5W	17.9N 86.8W	10 NV	250 N H 890812	21:19:07	165 275 40 70
90	40	HONDURAS	BAHIA DE TRUJILLO	16.8N 86.8W	17.3N 86.4W	20 NV	250 N H 890812	21:19:17	165 275 40 70
90	41	HONDURAS	HONDURAS BORDER	15.8N 83.5W	14.2N 84.8W	70 NV	250 N H 890812	21:20:02	165 277 38 70
90	42	VENEZUELA	GOLFO DE VENEZUELA	13.5N 70.8W	9.1N 81.4W	60 HO	250 N H 890812	21:21:45	165 282 33 70
90	43	COLOMBIA	MOUNTAINS, CLOUDS		2.6N 77.6W	70	250 N H 890812	21:23:43	165 285 28 70
90	44	COLOMBIA	MOUNTAINS, CLOUDS		1.8N 77.1W	70	250 N H 890812	21:23:57	165 286 27 70
90	45	BOLIVIA	ANDES MTNS., L. TITICACA	15.5S 68.5W	12.6S 68.8W	30 LO	250 N H 890812	21:28:16	165 289 14 70
90	46	BOLIVIA	ANDES MTNS., L. TITICACA	15.5S 68.0W	12.9S 68.6W	20 LO	250 N H 890812	21:28:20	165 289 13 70
90	47	BOLIVIA	ANDES MTA., DESAGUADERO	17.0S 68.8W	14.5S 67.6W	20 LO	250 N H 890812	21:28:49	165 289 12 70
90	48	BOLIVIA	LAGO POPO	18.0S 67.0W	15.2S 67.2W	10 LO	250 N H 890812	21:29:03	165 289 11 70
90	49	BOLIVIA	RIO PARAPETI	20.0S 63.0W	19.1S 64.7W	0 NV	250 U H 890812	21:30:14	165 288 7 70

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	DATE	GMT	AL	AZ	EL	OR
90	50	BOLIVIA	RIO GRANDE	19.05 63.5W	19.35 64.5W	8	LO	250	U	N	890812 21:30:18	165	288	7	70
90	51	BOLIVIA	RIO PILCOMAYO	21.85 63.5W	19.95 64.1W	8	NV	250	U	N	890812 21:30:29	165	288	7	70
90	52	MEDITERRANEAN SEA	SUNGLINT		39.3N 6.3E	28	LO	250	N	N	890813 05:54:30	160	81	12	76
90	53	FRANCE	CORSICA	42.0N 9.0E	49.9N 8.2E	30	NV	250	N	N	890813 05:55:04	160	82	14	76
90	54	ITALY	ELBA	43.0N 10.5E	42.7N 10.6E	18	NV	250	N	Y	890813 05:55:43	160	84	15	76
90	55	ITALY	PIONBINO	43.0N 11.0E	42.8N 10.8E	18	NV	250	N	Y	890813 05:55:44	160	85	16	76
90	56	ITALY	TYRRHENIAN SEA COASTLINE	43.0N 11.0E	43.0N 11.0E	5	NV	250	N	Y	890813 05:55:50	160	85	16	76
90	57	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.5E	43.2N 11.3E	5	NV	250	N	Y	890813 05:55:54	160	85	16	76
90	58	ITALY	ADRIATIC SEA COASTLINE	43.5N 13.5E	43.7N 12.0E	5	NV	250	N	N	890813 05:56:06	160	86	17	76
90	59	ITALY	GULF OF VENICE	45.0N 12.5E	44.2N 12.8E	5	NV	250	N	N	890813 05:56:18	160	87	18	76
90	60	YUGOSLAVIA	TRIESTE, GULF OF VENICE	46.0N 13.5E	44.6N 13.5E	5	NV	250	N	N	890813 05:56:28	160	87	18	76
90	61	ITALY	VENICE	45.5N 12.5E	44.9N 13.9E	10	NV	250	N	Y	890813 05:56:34	160	88	19	76
90	62	ITALY	VENICE	45.0N 12.5E	45.1N 14.2E	10	NV	250	N	Y	890813 05:56:39	160	88	19	76
90	63	YUGOSLAVIA	ADRIATIC SEA	45.0N 14.0E	45.6N 15.0E	5	NV	250	N	N	890813 05:56:50	160	89	19	76
90	64	USSR-EUROPEAN	MOSCOW	55.5N 38.5E	55.4N 41.7E	5	LO	250	N	N	890813 06:01:55	160	117	35	76
90	65	USSR-EUROPEAN	MOSCOW	55.5N 38.5E	55.6N 42.1E	5	LO	250	N	N	890813 06:01:58	160	118	35	76
90	66	USSR-EUROPEAN	GOROGY	56.0N 43.5E	55.9N 44.6E	8	NV	250	N	N	890813 06:02:21	160	121	36	76
90	67	USSR-EUROPEAN	VOLGA RIVER	56.0N 47.0E	56.0N 45.7E	18	NV	250	N	N	890813 06:02:31	160	122	36	76
90	68	USSR-MIDDLE	CLOUDS		57.1N 60.8E	78		250	N	N	890813 06:04:43	161	140	42	76
90	69	USSR-MIDDLE	CLOUDS		57.2N 62.1E	60		250	N	N	890813 06:04:54	161	142	43	76
90	70	USSR-MIDDLE	FIRES, SMOKE		56.0N 78.1E	48		250	N	N	890813 06:07:15	161	164	48	76
90	71	USSR-MIDDLE	FIRES, SMOKE		55.8N 79.1E	20		250	N	N	890813 06:07:22	161	165	48	76
90	72	USSR-MIDDLE	NOVOSIBIRSK	55.0N 83.0E	55.4N 82.4E	38	LO	250	N	N	890813 06:07:34	161	167	49	76
90	73	USSR-MIDDLE	KYZYL	51.5N 94.5E	52.1N 94.5E	80	NV	250	N	N	890813 06:09:56	162	189	52	76
90	74	CHINA	BOHAI BAY	38.5N 117.5E	41.8N 114.1E	28	LO	250	N	N	890813 06:14:18	163	228	55	76
90	75	CHINA	BOHAI BAY	39.0N 118.0E	41.6N 114.3E	20	LO	250	N	N	890813 06:14:22	163	229	55	76
90	76	CHINA	BOHAI BAY	39.0N 119.0E	41.5N 114.4E	5	LO	250	N	N	890813 06:14:24	163	229	55	76
90	77	CHINA	LIAODONG BAY	39.5N 119.5E	41.4N 114.6E	5	LO	250	N	N	890813 06:14:27	163	229	55	76
90	78	CHINA	LIAODONG BAY	38.5N 121.5E	40.9N 115.3E	6	LO	250	N	N	890813 06:14:38	163	231	55	76
90	79	CHINA	SHANDONG PENINSULA	36.0N 120.0E	40.3N 116.0E	10	LO	250	N	N	890813 06:14:50	163	232	56	76
90	80	CHINA	YELLOW SEA COASTLINE	34.0N 120.5E	34.7N 122.5E	88	LO	250	N	N	890813 06:16:53	163	247	53	76
90	81	CHINA	YELLOW SEA COASTLINE	34.5N 119.5E	34.2N 122.7E	88	LO	250	N	N	890813 06:16:57	163	248	52	76
90	82	EAST CHINA SEA	SUNGLINT		36.2N 126.3E	5		250	N	N	890813 06:18:15	164	254	51	76
90	83	PHILIPPINE SEA	CLOUDS		25.0N 130.1E	78		250	N	N	890813 06:18:47	164	264	48	76
90	84	PAPUA NEW GUINEA	NEW BRITAIN	5.0S 150.0E	6.5S 149.8E	20	NV	250	N	N	890813 06:28:26	165	289	21	76
90	85	FED REP OF GERMANY	HAMNOVER	52.5N 9.5E	54.0N 12.4E	5	LO	250	N	N	890813 07:31:23	160	110	32	77
90	86	USSR-EUROPEAN	LITHUANIA		56.1N 23.4E	5		250	N	N	890813 07:33:87	160	122	37	77
90	87	USSR-EUROPEAN	VOLGA RIVER	56.0N 48.0E	56.6N 50.3E	60	LO	250	N	N	890813 07:37:00	161	156	46	77
90	88	USSR-EUROPEAN	VOLGA RIVER	56.0N 48.0E	56.5N 51.2E	60	LO	250	N	N	890813 07:37:06	161	158	47	77
90	89	USSR-EUROPEAN	VOLGA RIVER	56.0N 48.5E	56.4N 51.6E	80	LO	250	N	N	890813 07:37:11	161	158	47	77
90	90	USSR-EUROPEAN	VOLGA RIVER	55.5N 49.0E	56.4N 51.8E	30	LO	250	N	N	890813 07:37:13	161	158	47	77
90	91	USSR-EUROPEAN	VOLGA RIVER	56.0N 47.5E	56.4N 52.3E	78	LO	250	N	N	890813 07:37:18	161	159	47	77
90	92	USSR-EUROPEAN	KUTBYSHESKOYE RESERVOIR	55.0N 49.5E	56.1N 54.2E	78	LO	250	N	N	890813 07:37:35	161	162	48	77
90	93	USSR-EUROPEAN	AGRICULTURE, MOUNTAINS		55.5N 58.3E	30		250	N	N	890813 07:38:12	161	168	49	77
90	94	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.2N 64.1E	20	NV	250	N	Y	890813 07:39:06	161	176	51	77
90	95	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.1N 64.7E	20	NV	250	N	Y	890813 07:39:14	161	177	51	77
90	96	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.0N 65.0E	28	NV	250	N	Y	890813 07:39:17	161	178	51	77
90	97	USSR-MIDDLE	LAKE TENQZ	58.5N 69.0E	52.5N 78.3E	30	LO	250	N	N	890813 07:40:12	162	186	52	77
90	98	USSR-MIDDLE	LAKE TENQZ	58.5N 69.0E	52.3N 78.8E	30	LO	250	N	N	890813 07:40:18	162	187	52	77
90	99	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.0E	50.6N 75.4E	5	LO	250	N	N	890813 07:41:10	162	196	53	77
90	100	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.5E	50.5N 75.7E	5	LO	250	N	N	890813 07:41:23	162	196	53	77
90	101	USSR-MIDDLE	LAKE BALKHASH	46.5N 75.0E	50.4N 75.9E	38	LO	250	N	N	890813 07:41:16	162	196	53	77
90	102	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	50.3N 76.2E	20	LO	250	N	N	890813 07:41:19	162	197	54	77
90	103	USSR-MIDDLE	LAKE BALKHASH	46.5N 75.0E	50.1N 76.8E	20	LO	250	N	N	890813 07:41:26	162	198	54	77
90	104	USSR-MIDDLE	LAKE BALKHASH	46.5N 76.0E	49.9N 77.1E	30	LO	250	N	N	890813 07:41:30	162	199	54	77
91	0 A	USSR-MIDDLE	LAKE BALKHASH	46.5N 79.0E		18	LO	250	N	N					
91	0 B	USSR-MIDDLE	LAKE SASYKKOL	46.0N 81.0E		5	LO	250	N	N					
91	0 C	USSR-MIDDLE	LAKE ALAKOL	46.5N 81.5E		10	LO	250	N	N					
91	0 D	USSR-MIDDLE	LAKE ALAKOL	46.0N 81.5E		5	LO	250	N	N					
91	0 E	CHINA	USSR BORDER	45.5N 82.5E		20	LO	250	N	N					
91	0 F	CHINA	LAKE EBINUR	45.0N 82.5E		5	LO	250	N	N					
91	0 G	CHINA	AGRICULTURE, USSR BORDER	43.5N 81.0E		50	NV	100	N	Y					
91	0 H	CHINA	AGRICULTURE, USSR BORDER	43.5N 82.0E		60	NV	100	N	Y					
91	0 I	CHINA	LAKE BOSTEN	42.0N 86.5E		60	NV	100	N	N					
91	0 K	CHINA	TAKLIMAKAN DESERT	41.0N 80.0E		30	LO	100	N	N					
91	0 L	CHINA	LAKE SUHAI	39.0N 94.0E		30	NV	250	N	N					
91	0 M	CHINA	ALLUVIAL FAN	37.5N 93.5E		60	NV	250	N	N					
91	0 N	CHINA	LAKE DABSAN	37.0N 95.0E		5	NV	250	N	Y					
91	0 P	CHINA	LAKE DABSAN	36.5N 95.5E		10	NV	250	N	Y					
91	0 Q	CHINA	TIBET, LAKES, CLOUDS	35.0N 89.5E		70	LO	250	N	N					

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON.	NADIR LAT. LON.	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL OR
91	0 R	CHINA	XICHANG	28.0N 102.0E		80	LO	250	N	N			
91	0 S	CHINA	ANNING RIVER	27.5N 102.0E		80	LO	250	N	N			
91	0 T	CHINA	MIN RIVER	30.0N 103.5E		70	LO	250	N	N			
91	0 U	CHINA	YANGTZE RIVER	28.5N 104.5E		40	LO	250	N	N			
91	1	BRITAIN	THE WASH	53.0N 0.5E	54.1N 0.1W	50	LO	250	N	N	890813	09:03:20	160 121 36 78
91	2	BRITAIN	CLOUDS	52.0N 0.0	54.2N 0.7E	60	LO	250	N	N	890813	09:03:35	160 122 36 78
91	3	BRITAIN	EASTERN COASTLINE	52.5N 1.0E	54.3N 1.6E	30	LO	250	N	N	890813	09:03:43	160 123 37 78
91	4	NETHERLANDS	ZUIDER ZEE	53.0N 5.0E	54.0N 6.5E	40	LO	250	N	N	890813	09:04:26	160 129 39 78
91	5	FED REP OF GERMANY	WILHELMSHAVEN	53.5N 8.0E	54.9N 7.7E	20	LO	250	N	N	890813	09:04:36	160 131 39 78
91	6	FED REP OF GERMANY	EAST FRISIAN ISLANDS	53.0N 7.5E	54.9N 8.4E	20	LO	250	N	N	890813	09:04:42	160 131 40 78
91	7	SWEDEN	OLAND	57.0N 16.5E	57.1N 17.5E	20	NV	250	U	N	890813	09:06:00	161 143 43 78
91	8	USSR-EUROPEAN	LIEPAJA	56.5N 21.0E	57.1N 20.5E	30	NV	250	U	N	890813	09:06:26	161 147 44 78
91	9	USSR-EUROPEAN	ARAL SEA	46.0N 50.5E	46.3N 61.3E	40	LO	250	N	N	890813	09:13:20	162 212 55 78
91	10	USSR-MIDDLE	ARAL SEA	45.5N 60.0E	46.2N 61.5E	30	LO	250	N	N	890813	09:13:32	162 213 55 78
91	11	USSR-MIDDLE	ARAL SEA	45.5N 61.0E	46.0N 61.8E	0	NV	250	N	N	890813	09:13:36	162 213 55 78
91	12	USSR-MIDDLE	ARAL SEA	44.5N 61.0E	45.0N 62.1E	0	NV	250	N	N	890813	09:13:40	162 214 55 78
91	13	USSR-MIDDLE	ARAL SEA	44.0N 60.5E	45.0N 62.2E	5	LO	250	N	N	890813	09:13:42	162 214 55 78
91	14	USSR-EUROPEAN	ARAL SEA	44.0N 59.5E	45.6N 62.5E	30	LO	250	N	N	890813	09:13:46	162 215 55 78
91	15	USSR-MIDDLE	KYZYLKUM		45.1N 63.3E	0		250	N	N	890813	09:13:57	163 216 55 78
91	16	USSR-MIDDLE	KYZYLKUM		44.5N 64.3E	0		250	N	N	890813	09:14:12	163 219 55 78
91	17	USSR-MIDDLE	KYZYLKUM		44.1N 64.9E	0		250	N	N	890813	09:14:21	163 220 55 78
91	18	USSR-MIDDLE	LAKE AYDARKUL	41.0N 67.0E	41.0N 68.0E	0	NV	250	N	N	890813	09:15:10	163 227 55 78
91	19	USSR-MIDDLE	LAKE AYDARKUL	41.0N 66.5E	41.0N 68.2E	0	LO	250	N	N	890813	09:15:14	163 227 55 78
91	20	AFGHANISTAN	AMU RIVER, USSR BORDER	37.5N 68.5E	38.7N 71.0E	0	LO	250	N	N	890813	09:16:10	163 236 54 78
91	21	PAKISTAN	HINDUKUSH, AFGHANISTAN	36.5N 72.0E	38.2N 72.6E	60	LO	250	N	N	890813	09:16:31	163 237 54 78
91	22	PAKISTAN	HINDUKUSH, AFGHANISTAN	36.0N 71.5E	38.0N 72.7E	20	LO	250	N	N	890813	09:16:34	163 238 54 78
91	23	PAKISTAN	MANGLA RESERVOIR	33.5N 74.0E	36.0N 74.9E	20	LO	250	N	N	890813	09:17:16	163 243 54 78
91	24	INDIA	BAY OF BENGAL COASTLINE	20.5N 86.5E	20.6N 87.6E	50	NV	250	N	N	890813	09:22:12	165 270 45 78
91	25	AUSTRALIA-WA.	GEOGRAPHIC CHANNEL	24.5S 113.5E	21.4S 113.1E	0	LO	250	N	N	890813	09:34:51	165 289 8 78
91	26	AUSTRALIA-WA.	GASCOYNE RIVER, CARBARNVON	25.0S 114.0E	22.3S 113.7E	0	LO	250	N	N	890813	09:35:06	165 289 7 78
91	27	AUSTRALIA-WA.	NATURALISTE CHANNEL	25.3S 113.0E	23.0S 114.2E	30	LO	250	N	N	890813	09:35:20	165 289 6 78
92	0 A	CHINA	YELLOW RIVER MOUTH	38.0N 118.0E		40	HO	100	N	N			
92	0 B	CHINA	BOHAI STRAIT	38.0N 121.0E		40	HO	100	N	N			
92	0 C	CHINA	YELLOW RIVER MOUTH	38.5N 118.5E		30	LO	100	N	N			
92	0 D	CHINA	YELLOW RIVER	37.0N 117.0E		30	LO	100	N	N			
92	0 E	CHINA	BEIJING	40.0N 116.5E		40	LO	100	N	N			
92	0 F	CHINA	BOHAI BAY	38.5N 118.0E		20	LO	100	N	N			
92	0 G	CHINA	YELLOW RIVER MOUTH	38.0N 118.0E		0	LO	100	N	N			
92	0 H	CHINA	YELLOW RIVER MOUTH	37.5N 119.5E		5	LO	100	N	N			
92	0 J	CHINA	SHANDONG PENINSULA	37.0N 121.0E		20	LO	100	N	N			
92	0 K	CHINA	QINGDAO, CANGKOU	36.0N 120.0E		20	LO	100	N	N			
92	0 L	CHINA	HAIZHOU BAY	34.5N 120.0E		80	LO	100	N	N			
92	0 M	CHINA	EAST CHINA SEA COASTLINE	29.5N 121.5E		40	LO	100	N	N			
92	0 N	PAPUA NEW GUINEA	ISMARCK ARCHPELAGO	5.0S 149.5E		50	LO	100	N	N			
92	1	AUSTRALIA-WA.	SHARK BAY	25.0S 113.5E	20.5S 112.4E	40	HO	100	O	N	890813	09:34:30	165 289 9 78
93	1	BRITAIN	MORECAMBE BAY, IRISH SEA	54.0N 3.0W	55.3N 4.3W	20	LO	250	N	N	890810	10:06:41	161 134 43 31
93	2	BRITAIN	MORECAMBE BAY, LAKE AREA	54.5N 3.0W	55.4N 4.0W	10	LO	250	N	N	890810	10:07:47	161 134 43 31
93	3	BRITAIN	SOLWAY FIRTH, LAKE AREA	55.0N 3.5W	55.5N 3.5W	40	LO	250	N	N	890810	10:08:52	161 135 43 31
93	4	BRITAIN	LAKE AREA	54.5N 3.0W	55.5N 3.1W	20	NV	250	N	N	890810	10:09:53	161 135 43 31
93	5	BRITAIN	ABERDEEN, NE COAST	57.5N 2.0W	56.2N 1.5E	30	LO	250	N	N	890810	10:09:57	161 142 44 31
93	6	SWEDEN	L. WATTEN	58.5N 15.0E	57.0N 9.1E	80	LO	250	N	N	890810	10:10:44	161 152 46 31
93	7	SWEDEN	LAKE COUNTRY	59.5N 16.5E	57.1N 12.0E	70	LO	250	N	N	890810	10:11:09	161 154 47 31
93	8	SWEDEN	STOCKHOLM LAKES	59.5N 18.0E	57.1N 12.4E	70	LO	250	N	N	890810	10:11:12	161 157 47 31
93	9	SWEDEN	LAKE WATTEN	58.5N 14.5E	57.1N 13.6E	70	LO	250	N	N	890810	10:11:22	161 159 47 31
93	10	SWEDEN	LAKE WATTEN, VISINGS I.	58.0N 14.5E	57.1N 13.0E	60	LO	250	N	N	890810	10:11:25	161 159 47 31
93	11	SWEDEN	LAKE WATTEN, VISINGS I.	58.5N 15.0E	57.1N 14.4E	60	LO	250	N	N	890810	10:11:28	161 160 47 31
93	12	SWEDEN	STOCKHOLM, EAST COAST	59.0N 17.5E	57.1N 18.1E	25	LO	250	N	N	890810	10:12:01	161 165 48 31
93	13	SWEDEN	STOCKHOLM, GRANFJARDEN	59.5N 17.5E	57.1N 18.4E	30	LO	250	N	N	890810	10:12:05	161 164 48 31
93	14	USSR-EUROPEAN	SURA RIVER	53.5N 45.0E	53.3N 44.8E	80	NV	100	N	N	890810	10:16:05	162 207 50 31
93	15	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	53.5N 49.0E	53.0N 45.4E	80	LO	100	N	N	890810	10:16:14	162 208 50 31
93	16	USSR-EUROPEAN	VOLGA R. SARATOV RES.	52.5N 48.5E	52.9N 46.2E	70	LO	100	N	N	890810	10:16:20	162 209 50 31
93	17	USSR-EUROPEAN	VOLGA R. SARATOV RES.	52.5N 48.0E	52.7N 46.4E	70	LO	100	N	N	890810	10:16:25	162 210 50 31
93	18	USSR-EUROPEAN	VOLGA RIVER	51.5N 47.0E	52.4N 47.1E	80	NV	100	N	N	890810	10:16:30	162 211 50 31
93	19	USSR-EUROPEAN	URAL R. L. SHALKAR	50.5N 51.5E	52.2N 48.3E	70	LO	100	N	N	890810	10:16:43	162 213 50 31
93	20	USSR-EUROPEAN	URAL R. L. SHALKAR	50.5N 51.0E	51.8N 49.5E	70	LO	100	N	N	890810	10:16:56	162 215 50 31
93	21	USSR-EUROPEAN	USTYURT DES, FLOOD	45.5N 55.0E	49.2N 55.7E	50	LO	100	N	N	890810	10:18:10	163 225 49 31
93	22	USSR-EUROPEAN	USTYURT DES, FLOOD	45.5N 55.0E	48.8N 56.7E	50	LO	100	N	N	890810	10:18:22	163 227 49 31
93	23	USSR-EUROPEAN	ARAL SEA	45.0N 59.5E	47.8N 58.7E	60	LO	100	N	N	890810	10:18:48	163 230 48 31
93	24	USSR-EUROPEAN	ARAL SEA	45.0N 59.5E	47.5N 59.2E	60	LO	100	N	N	890810	10:18:53	163 231 48 31
93	25	USSR-EUROPEAN	ARAL SEA	45.0N 59.5E	47.4N 59.4E	60	LO	100	N	N	890810	10:19:57	163 232 48 31

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON	NADIR LAT. LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL	OR
93	26	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	44.0N 64.5E	43.5N 65.9E	0	LO	100	N	Y	890810	10:20:32	163 243 44	31
93	27	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	44.0N 67.0E	43.3N 66.2E	0	LO	100	N	Y	890810	10:20:37	163 244 44	31
93	28	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	43.5N 67.5E	42.9N 66.7E	0	NV	100	N	Y	890810	10:20:44	163 244 44	31
93	29	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	43.0N 68.0E	42.9N 66.8E	0	NV	100	N	Y	890810	10:20:46	163 245 44	31
93	30	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	42.5N 68.0E	42.7N 67.0E	0	NV	100	N	Y	890810	10:20:49	163 245 44	31
93	31	USSR-MIDDLE	SYRDAR R. TASHKENT, AGR.	41.0N 68.5E	42.4N 67.4E	0	LO	100	N	N	890810	10:20:56	163 246 44	31
93	32	USSR-MIDDLE	SYRDAR R. KAYRAKKUM RES.	40.5N 70.0E	41.8N 68.3E	5	LO	100	N	N	890810	10:21:10	163 247 45	31
93	33	USSR-MIDDLE	SYRDAR R. FERGANA BASIN	40.5N 70.5E	41.5N 68.7E	5	LO	100	N	N	890810	10:21:17	163 248 45	31
93	34	USSR-MIDDLE	SYRDAR R. TASHKENT, AGR.	41.0N 69.0E	41.1N 69.1E	0	NV	100	N	Y	890810	10:21:24	163 249 45	31
93	35	USSR-MIDDLE	SYRDAR R. RESERVOIRS/AGR	40.5N 68.5E	41.9N 69.3E	0	NV	100	N	Y	890810	10:21:27	163 249 45	31
93	36	USSR-MIDDLE	MT. KOMMUNIZMA, TURKRG	39.5N 71.5E	40.3N 70.1E	5	LO	100	N	Y	890810	10:21:42	163 250 44	31
93	37	USSR-MIDDLE	MT. KOMMUNIZMA, TURKRG	39.5N 71.0E	40.2N 70.3E	5	LO	100	N	Y	890810	10:21:44	163 250 44	31
93	38	USSR-MIDDLE	TURKESTAN RGEZERASHAN R	39.5N 70.0E	40.1N 70.4E	5	NV	100	N	Y	890810	10:21:46	163 251 44	31
93	39	USSR-MIDDLE	TURKESTAN RGEZERASHAN R	39.0N 69.5E	40.0N 70.5E	5	LO	100	N	Y	890810	10:21:48	163 251 44	31
93	40	USSR-MIDDLE	PETRA PERVOGO RANGE	37.5N 69.5E	39.7N 70.0E	0	LO	100	N	Y	890810	10:21:55	163 252 44	31
93	41	AFGHANISTAN	PETRA PERVOGO RANGE	38.0N 70.5E	39.7N 70.8E	0	LO	100	N	Y	890810	10:21:57	163 251 44	31
93	42	AFGHANISTAN	PAMIR MTHS. PYANDZH R.	38.0N 71.0E	39.5N 71.2E	0	LO	100	N	Y	890810	10:22:00	163 252 44	31
93	43	USSR-MIDDLE	MT. REVOLUCI/PET.PERJG	38.0N 72.0E	39.4N 71.3E	0	LO	100	N	Y	890810	10:22:02	164 252 44	31
93	44	USSR-MIDDLE	MT. REVOLUCI/PET.PERJG	38.0N 71.0E	39.2N 71.5E	0	LO	100	N	Y	890810	10:22:06	164 253 44	31
93	45	AFGHANISTAN	PAMIR MTHS. L. ZORKUL	37.0N 74.0E	37.7N 73.2E	18	NV	100	N	Y	890810	10:22:57	164 253 43	31
93	46	AFGHANISTAN	PAMIR MTHS. L. ZORKUL	37.0N 73.5E	37.4N 73.3E	18	NV	100	N	Y	890810	10:22:59	164 254 43	31
93	47	AFGHANISTAN	PAMIR MTHS. L. ZORKUL	37.0N 73.0E	37.5N 73.5E	18	NV	100	N	Y	890810	10:22:42	164 255 43	31
93	48	PAKISTAN	PAMIR MTHS. PYANDZH R.	36.5N 73.0E	37.3N 73.6E	19	NV	100	N	Y	890810	10:22:45	164 256 43	31
93	49	INDIA	JHELUM R. KASHMIR VALLEY	34.5N 74.5E	35.1N 76.0E	50	LO	100	N	N	890810	10:23:31	164 260 41	31
93	50	INDIA	JHELUM R. KASHMIR VALLEY	34.0N 74.5E	34.9N 76.1E	50	LO	100	N	N	890810	10:23:34	164 260 41	31
93	51	INDIA	RAVI R. CHENAB R. PLAINS	33.0N 75.0E	34.8N 76.2E	50	LO	100	N	N	890810	10:23:36	164 260 41	31
93	52	INDIA	HIMALAYA RANGE	33.0N 76.0E	34.5N 76.5E	75	LO	100	N	N	890810	10:23:42	164 261 41	31
93	53	INDIA	KASHMIR BASIN/PIR PANJAL	33.5N 74.5E	34.1N 76.9E	40	LO	100	N	Y	890810	10:23:51	164 262 40	31
93	54	INDIA	CHENAB R. PIR PANJAL RGE	33.0N 75.0E	33.9N 77.1E	50	LO	100	N	Y	890810	10:23:55	164 262 40	31
93	55	INDIA	RAVI R. BEAS R. PLAINS	32.0N 75.5E	33.2N 77.2E	50	LO	100	N	Y	890810	10:23:57	164 262 40	31
93	56	INDIA	SUTLEJ R. BEAS R.	32.0N 76.5E	33.5N 77.5E	60	LO	100	N	Y	890810	10:24:03	164 262 40	31
93	57	INDIA	SUTLEJ R. YAMUNA R.	31.0N 77.0E	32.2N 78.6E	60	LO	100	N	Y	890810	10:24:27	164 264 39	31
93	58	INDIA	SUTLEJ R. YAMUNA R.	30.5N 77.0E	31.9N 78.9E	60	LO	100	N	Y	890810	10:24:34	164 265 39	31
93	59	INDIA	GANGES R. YAMUNA R.	30.0N 78.0E	31.5N 79.3E	70	LO	100	N	Y	890810	10:24:41	164 265 38	31
93	60	CHINA	XIANGQUAN R. HEN. PLAT.	31.0N 80.5E	30.7N 80.0E	70	NV	100	N	Y	890810	10:24:58	164 266 38	31
93	61	CHINA	LANGA L. MAPAN YUM L.	30.5N 81.0E	30.5N 80.2E	70	NV	100	N	Y	890810	10:25:01	164 267 38	31
93	62	CHINA	MAOJIAN R. GANGDISE SHAN	30.0N 83.0E	29.3N 81.2E	70	LO	100	N	N	890810	10:25:24	164 268 37	31
93	63	INDIA	GHAGHARA R. RAPTI R.	26.5N 83.5E	26.1N 83.8E	60	NV	100	N	N	890810	10:26:26	164 272 34	31
93	64	INDIA	GHAGHARA R.	25.5N 85.5E	25.1N 84.5E	60	LO	100	N	N	890810	10:26:45	165 273 33	31
93	65	BANGLADESH	GANGES R. BRAHMAPUTRA R.	24.0N 89.5E	22.9N 94.3E	50	LO	100	N	N	890810	10:27:59	165 275 32	31
93	66	BANGLADESH	GANGES R. BRAHMAPUTRA R.	25.0N 89.0E	21.9N 86.7E	60	LO	100	N	N	890810	10:27:44	165 276 31	31
93	67	BANGLADESH	GANGES R. DELTA	21.0N 89.5E	17.9N 89.5E	70	LO	100	N	N	890810	10:28:57	165 278 28	31
93	68	BAHAMAS	LONG LUN CAY, CROOKED I	23.5N 75.5W	25.1N 75.7W	50	LO	100	N	N	890810	11:27:12	161 78 11	32
93	69	BAHAMAS	LONG LUN CAY, CROOKED I	23.0N 74.5W	25.3N 75.5W	50	LO	100	N	N	890810	11:27:16	161 78 11	32
93	70	CANADA-N	PANORAMA-ENTIRE PROVINCE	47.5N 59.5W	58.2N 48.8W	40	HO	100	N	N	890810	11:36:12	161 110 34	32
93	71	CANADA-N	PANORAMA-ENTIRE PROVINCE	48.0N 59.0W	58.5N 48.9W	40	HO	100	N	N	890810	11:36:22	161 111 34	32
93	72	CANADA-N	PANORAMA-ENTIRE PROVINCE	48.0N 59.5W	58.6N 48.8W	40	HO	100	N	N	890810	11:36:24	161 112 34	32
93	73	BRITAIN	SOLWAY FIRTH, LAKE AREA	55.0N 4.0W	57.1N 4.3W	75	LO	100	N	N	890810	11:42:57	161 165 48	32
93	74	FED REP OF GERMANY	ELBE R., WESER R. CST.	54.0N 7.5E	56.2N 7.3E	60	LO	100	N	N	890810	11:44:18	162 183 49	32
93	75	DENMARK	SW COAST	55.5N 8.5E	56.0N 8.9E	90	NV	100	N	N	890810	11:44:32	162 185 50	32
93	76	FED REP OF GERMANY	ELBE R./WESER RESTUARIES	54.0N 7.5E	55.9N 9.8E	60	LO	100	N	N	890810	11:44:41	162 187 50	32
93	77	FED REP OF GERMANY	ELBE R./WESER RESTUARIES	54.0N 8.5E	55.7N 10.8E	60	LO	100	N	N	890810	11:44:50	162 188 50	32
93	78	SWEDEN	L. VATTERN	58.0N 16.6E	55.1N 14.2E	80	LO	100	N	N	890810	11:45:24	162 194 50	32
93	79	SWEDEN	OLAND I. KALMAR STR.	56.5N 15.5E	55.1N 14.5E	75	N	100	N	N	890810	11:45:24	162 194 50	32
93	80	POLAND	HEL PEN, KALININGRAD BAY	54.5N 18.5E	54.6N 16.5E	85	LO	100	N	N	890810	11:45:44	162 198 50	32
93	81	USA-CO	SAN JUAN MTHS.	38.0N 107.0W	39.3N 108.5W	40	LO	250	N	N	890810	14:32:55	161 93 24	34
93	82	USA-CO	SANGRE DE CRISTO MTHS.	37.5N 105.5W	39.5N 108.3W	20	LO	250	N	N	890810	14:32:59	161 93 24	34
93	83	USA-CO	SANGRE DE CRISTO MTHS.	38.5N 105.5W	39.6N 108.2W	15	LO	250	N	N	890810	14:33:02	161 93 24	34
93	84	USA-CO	COLORADO SPRINGS, PUEBLO	39.0N 105.0W	39.9N 107.8W	40	LO	250	N	Y	890810	14:33:09	161 90 24	34
93	85	USA-CO	COLORADO SPRINGS	39.0N 105.0W	40.0N 107.6W	35	LO	250	N	Y	890810	14:33:11	161 90 25	34
93	86	USA-CO	DENVER, FRONT RANGE	39.5N 105.0W	40.1N 107.5W	15	LO	250	N	Y	890810	14:33:13	161 90 25	34
93	87	USA-CO	DENVER, FRONT RANGE	39.5N 105.0W	40.3N 107.4W	5	LO	250	N	Y	890810	14:33:16	161 90 25	34
93	88	USA-CO	DENVER, BOULDER/LONGMONT	40.0N 105.5W	40.5N 107.0W	5	LO	250	N	Y	890810	14:33:19	161 90 25	34
93	89	USA-CO	DENVER, BOULDER/LONGMONT	40.0N 105.5W	40.5N 107.0W	20	LO	250	N	Y	890810	14:33:22	161 91 25	34
93	90	USA-CO	FORT COLLINS, FRONT RGE.	40.5N 105.0W	41.0N 106.4W	0	LO	250	N	Y	890810	14:33:32	161 91 26	34
93	91	USA-CO	FORT COLLINS, AGR.	40.5N 105.0W	41.1N 106.3W	0	LO	250	N	Y	890810	14:33:34	161 91 26	34
93	92	USA-CO	GREELEY, SO. PLATTE R. AGR	40.5N 104.5W	41.2N 106.1W	0	LO	250	N	Y	890810	14:33:37	161 92 26	34
93	93	USA-CO	SOUTH PLATTE R. AGR.	40.5N 104.0W	41.3N 106.0W	0	LO	250	N	Y	890810	14:33:39	161 92 26	34
93	94	USA-CO	SOUTH PLATTE R. AGR.	40.0N 104.0W	41.5N 105.8W	0	LO	250	N	Y	890810	14:33:42	161 92 26	34
93	95	USA-NE	SCOTTS BLUFF, NO. PLATTE R.	42.0N 104.0W	42.3N 104.7W	0	NV	250	N	Y	890810	14:34:01	161 93 27	34



**TABLE 4-3. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	HADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR
93	96	USA-NE	SCOTTSBLUFF, NO.PLATTE R	42.0N 103.5W	42.5N 104.5W	5 NV	250 N Y	890810 14:34:04	161	83	27	34	
93	97	USA-NE	NORTH PLATTE R. AGR.	41.5N 103.0W	42.6N 104.4W	20 LO	250 N Y	890810 14:34:06	161	84	27	34	
93	98	USA-NE	NO.PLATTE R. LMCCONAUGH	41.5N 102.5W	42.6N 104.2W	5 LO	250 N N	890810 14:34:08	161	94	27	34	
93	99	USA-MN	INTERNATIONAL FALLS	48.5N 93.5W	47.9N 95.7W	0 LO	250 N Y	890810 14:36:13	161	194	33	34	
93	100	CANADA	INTERNATIONAL FALLS, AGR	48.0N 93.0W	48.0N 95.4W	0 LO	250 N Y	890810 14:36:16	161	194	33	34	
93	101	USA-MH	LAKE AREA	48.0N 92.0W	48.2N 95.1W	35 LO	250 N Y	890810 14:36:21	161	194	33	34	
93	102	CANADA-O	LAKE AREA	48.5N 92.0W	48.3N 94.8W	20 LO	250 N Y	890810 14:36:24	161	193	33	34	
93	103	CANADA-O	LAKE AREA	49.5N 92.5W	48.7N 94.0W	0 LO	250 U N	890810 14:36:34	161	196	34	34	
93	104	CANADA-O	LAKE AREA	49.0N 92.0W	48.0N 93.7W	15 NV	259 N N	890810 14:36:38	161	196	34	34	
93	105	USA-MN	RAINY R. INT. FALLS	48.5N 94.0W	49.5N 92.4W	0 LO	250 N N	890810 14:36:55	161	198	35	34	
93	106	USA-MN	INT. FALLS, RAINY R/L	48.5N 93.5W	49.7N 92.0W	0 LO	250 N N	890810 14:37:00	161	198	35	34	
93	107	USA-MN	RAINY L. LAKE AREA	48.5N 93.0W	49.8N 91.7W	5 LO	250 N N	890810 14:37:03	161	198	35	34	
93	108	CANADA-O	LAKE AREA	48.5N 92.5W	50.2N 90.0W	10 LO	250 N N	890810 14:37:14	161	110	25	34	
93	109	CANADA-O	LAKE AREA,TRANS.CONT.HWY	49.5N 91.5W	51.2N 88.1W	0 LO	250 N N	890810 14:37:46	161	113	37	34	
93	110	CANADA-O	ST.JAMES BAY CST	54.0N 93.5W	54.5N 77.1W	50 LO	250 N N	890810 14:38:42	161	127	41	34	
94	0 A	CANADA-BC	ROCKY MTN.TRENCH,FRASER	53.5N 128.5W		30 LO	250 N N						
94	0 B	CANADA-BC	ROCKY MTN.TRENCH,COLOR	52.0N 118.0W		HO	250 N N						
94	0 C	CANADA-BC	ROCKY MTN.TRENCH,COLOR	52.0N 117.5W		30 HO	250 N N						
94	0 D	CANADA-BC	ROCKY MTHS. FRASER R.	54.0N 128.0W		30 LO	250 N N						
94	0 E	CANADA-A	PEACE R. SMOKY R. AGR.	56.0N 117.0W		30 LO	250 N N						
94	0 F	CANADA-S	MONTREAL L. PLAINS, AGR.	52.5N 105.5W		40 HO	250 N N						
94	0 G	CANADA-S	MONTREAL L. PLAINS, AGR.	53.0N 104.5W		50 HO	250 N N						
94	1	NORWAY	KRISTIANSTAD, COAST	58.0N 10.0E	56.7N 10.2E	30 LO	250 N N	890812 10:29:40	161	160	47	63	
94	2	NORWAY	COAST	59.0N 10.0E	56.6N 11.4E	5 LO	250 N N	890812 10:29:51	161	162	47	63	
94	3	DENMARK	SKAGEN-PENINSULA,LAESØ I	57.5N 10.5E	56.2N 14.0E	40 LO	250 N N	890812 10:30:22	161	167	48	63	
94	4	USSR-EUROPEAN	DNEPR R. AGR. SWAMP	52.0N 30.0E	53.2N 29.5E	15 LO	250 N N	890812 10:32:42	162	190	52	63	
94	5	USSR-EUROPEAN	GOHEL. DENPR R. AGR.	52.5N 31.0E	53.0N 30.2E	10 LO	250 N N	890812 10:32:49	162	191	52	63	
94	6	USSR-EUROPEAN	AGR. PLAINS	52.0N 31.5E	52.8N 31.1E	20 LO	250 N N	890812 10:32:58	162	193	52	63	
94	7	USSR-EUROPEAN	AGR. PLAINS	53.0N 31.5E	52.6N 31.7E	40 LO	250 N N	890812 10:33:05	162	194	52	63	
94	8	USSR-EUROPEAN	AGR. PLAINS	53.5N 31.5E	52.4N 32.3E	40 LO	250 N N	890812 10:33:11	162	195	52	63	
94	9	USSR-EUROPEAN	BRG.AGR. CANALS	54.5N 43.0E	44.7N 41.5E	40 LO	250 N N	890812 10:35:00	162	211	53	63	
94	10	USSR-EUROPEAN	BRG.AGR. CANALS	51.0N 43.0E	44.0N 41.7E	30 LO	250 N N	890812 10:35:03	162	212	53	63	
94	11	USSR-EUROPEAN	TELAV. BRG.AGR.CANALS	51.0N 43.5E	44.2N 42.4E	25 LO	250 N N	890812 10:35:11	163	213	53	63	
94	12	USSR-EUROPEAN	DON R. MEDVEDITSIA R.	49.5N 43.0E	48.0N 42.0E	40 LO	250 N N	890812 10:35:18	163	214	53	63	
94	13	USSR-EUROPEAN	DON RIVER	49.0N 44.0E	47.5N 43.0E	30 LO	250 N N	890812 10:35:20	163	216	53	63	
94	14	USSR-EUROPEAN	DON RIVER	49.0N 43.5E	47.3N 44.2E	25 LO	250 N N	890812 10:35:25	163	217	53	63	
94	15	USSR-EUROPEAN	VOLZHEKY. VOLGOGRAD RES	49.0N 45.0E	47.0N 44.0E	25 LO	250 N Y	890812 10:35:43	163	218	53	63	
94	16	USSR-EUROPEAN	VOLZHEKY. VOLGA R.	48.5N 45.0E	46.0N 45.0E	20 LO	250 N Y	890812 10:35:47	163	218	53	63	
94	17	USSR-EUROPEAN	VOLGA RIVER	49.0N 45.0E	46.0N 45.4E	25 LO	250 N Y	890812 10:35:52	163	219	53	63	
94	18	USSR-EUROPEAN	VOLGA RIVER	49.0N 45.5E	46.5N 45.6E	25 LO	250 N N	890812 10:35:55	163	220	53	63	
94	19	USSR-EUROPEAN	VOLGA RIVER, AGR.	49.0N 46.0E	46.3N 46.1E	40 LO	250 N N	890812 10:36:01	163	220	53	63	
94	20	USSR-EUROPEAN	URAL R. ESTUARY, COAST	47.5N 51.5E	43.6N 54.4E	20 LO	250 N N	890812 10:37:05	163	229	53	63	
94	21	USSR-EUROPEAN	AMUDAR BASIN,KARABAU R. CS	42.5N 59.5E	40.0N 55.1E	45 LO	250 N N	890812 10:38:24	163	239	52	63	
94	22	USSR-EUROPEAN	AMUDAR BASIN, ARAL SEA	43.0N 59.5E	39.7N 55.4E	40 LO	250 N N	890812 10:38:29	163	240	52	63	
94	23	USSR-EUROPEAN	AMUDAR BASIN	42.0N 60.0E	39.2N 54.0E	50 LO	250 N N	890812 10:38:48	163	241	51	63	
94	24	USSR-MIDDLE	AMUDAR BASIN	41.0N 60.5E	38.7N 56.6E	40 LO	250 N N	890812 10:39:50	163	252	51	63	
94	25	USSR-MIDDLE	AMUDAR BASIN, ARAL SEA	43.0N 60.0E	37.4N 58.1E	50 LO	250 N N	890812 10:39:18	164	245	51	63	
94	26	USSR-MIDDLE	KARAKUM RES/CANAL, AGR.	37.0N 61.0E	35.4N 60.1E	5 LO	250 N N	890812 10:39:58	164	250	50	63	
94	27	USSR-MIDDLE	MARY. BRG. AGR.	37.5N 62.0E	34.1N 61.5E	15 LO	250 N N	890812 10:40:25	164	252	49	63	
94	28	USA-AL	COOSA R. FOG, HAZE	32.5N 86.0W	32.1N 85.5W	20 LO	250 N N	890812 11:46:01	160	77	8	64	
94	29	USA-GA	TAYLOR RIDGE, LOOKOUT MT	34.5N 85.0W	32.5N 85.0W	10 LO	250 N N	890812 11:46:00	160	77	8	64	
94	30	USA-TN	APP. MTHS. HWASSEE R.	35.0N 85.0W	32.0N 84.0W	20 LO	250 N N	890812 11:46:17	160	78	8	64	
94	31	USA-TN	APP. MTHS. HAZE, GR. FOG	35.5N 84.5W	33.6N 84.0W	30 LO	250 N N	890812 11:46:30	160	78	9	64	
94	32	USA-SC	AGR. HAZE		34.3N 83.3W	60 LO	250 N N	890812 11:46:44	160	79	10	64	
94	33	USA-TN	CLINCH MTH. HOLSTON MTH	36.5N 83.0W	36.0N 81.0W	40 LO	250 N N	890812 11:47:10	160	80	12	64	
94	34	USA-OH	OHIO R. FIREBREAKS	39.0N 82.5W	36.7N 80.6W	20 LO	250 N N	890812 11:47:33	160	81	13	64	
94	35	USA-KY	TUG FORK, GR. FOG	37.5N 82.5W	37.3N 80.5W	40 LO	250 N N	890812 11:47:44	160	81	13	64	
94	36	USA-OH	OHIO R. GR. FOG, AGR.	40.0N 81.5W	37.9N 79.5W	20 LO	250 N N	890812 11:47:54	160	82	14	64	
94	37	USA-OH	CLEVELAND, L. ERIE	41.0N 81.5W	38.0N 78.5W	15 LO	250 N N	890812 11:48:16	160	83	15	64	
94	38	CANADA-A	N.SASKATCHEWAN R.FROG L.	54.0N 110.5W	54.5N 113.1W	20 LO	250 N N	890812 10:34:56	162	170	50	69	
94	39	CANADA-S	N.SASKATCHEWAN R. AGR.	53.5N 109.5W	54.2N 112.0W	5 LO	250 N N	890812 10:35:07	162	181	51	69	
94	40	CANADA-S	N.SASKATCHEWAN R. AGR.	53.5N 108.5W	53.0N 110.5W	20 LO	250 N N	890812 10:35:10	162	183	51	69	
94	41	CANADA-A	EDMONTON, N.SASK.R. AGR.	53.5N 113.5W	53.6N 109.5W	15 LO	250 N N	890812 10:35:32	162	185	51	69	
94	42	CANADA-A	EDMONTON, N.SASK.R. AGR.	54.0N 113.0W	53.5N 109.1W	10 LO	250 N N	890812 10:35:34	162	186	51	69	
94	43	CANADA-A	EDMONTON, N.SASK.R. AGR.	53.5N 112.5W	53.3N 108.6W	20 LO	250 N N	890812 10:35:41	162	186	52	69	
94	44	CANADA-A	BATTLE R. RED DEER LAGR	53.0N 112.5W	53.2N 108.3W	25 LO	250 N N	890812 10:35:44	162	187	52	69	
94	45	CANADA-S	LAST MTH. L. AGR.	51.0N 105.0W	52.6N 106.2W	50 LO	250 N N	890812 10:36:07	162	190	52	69	
94	46	CANADA-M	THE PRAIRIE L. SHELL R.	51.5N 101.5W	51.8N 104.0W	25 LO	250 N N	890812 10:36:31	162	194	52	69	
94	47	CANADA-M	THE PRAIRIE L. SHELL R.	51.0N 101.0W	51.5N 103.1W	35 LO	250 N N	890812 10:36:41	162	196	53	69	
94	48	CANADA-BC	ROCKY MTHS. KAMLOOPS L.	50.5N 120.5W	51.1N 125.0W	05 LO	250 N N	890812 21:07:23	162	197	53	70	

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
94	49	USA-WA	COLUMBIA R. YAKIMA VALLEY	46.0N 120.5W	50.8N 124.2W	64	HO	250	N	N	890812	21:57:32	162	199	53	78
94	50	USA-MT	PANORAMA-ROCKY MTH.FRONT	48.0N 112.5W	50.6N 122.7W	58	HO	250	N	N	890812	21:57:38	162	199	53	78
94	51	USA-OR	COLUMBIA R.YAKIMA VALLEY	45.0N 120.8W	49.5N 121.2W	45	HO	250	N	N	890812	21:58:00	162	204	53	78
94	52	USA-MT	GREAT FALLS, FLATHEAD L.	48.0N 112.0W	49.0N 120.0W	48	HO	250	N	N	890812	21:58:23	162	206	54	78
94	53	USA-MT	FLATHEAD L. BASIN, AGR.	47.5N 114.5W	48.2N 118.4W	48	LO	250	N	N	890812	21:58:44	162	209	54	78
94	54	USA-MT	GREAT FALLS, MO. R.	47.5N 112.5W	47.5N 116.7W	70	LO	250	N	N	890812	21:59:07	162	213	54	78
94	55	USA-ID	IDAHO FALLS, BEAR L.	43.5N 112.0W	46.3N 114.5W	85	LO	250	N	N	890812	21:59:33	162	217	54	78
94	56	USA-NV	GREAT BASIN, PANORAMA	40.0N 116.5W	45.2N 113.1W	58	HO	250	N	N	890812	21:59:58	163	220	54	78
94	57	USA-UT	GR.SALT LAKE, BEAR L.	42.0N 112.0W	44.6N 112.1W	75	LO	250	N	N	890812	21:18:13	163	222	54	78
94	58	USA-CO	COLORADO R/PLAT.GREEN R.	39.0N 109.0W	41.0N 107.0W	58	HO	250	N	N	890812	21:11:33	163	233	53	78
94	59	USA-CO	ARKANSAS R/BASIN, AGR.	38.0N 103.0W	38.7N 104.3W	78	LO	250	N	N	890812	21:12:22	163	239	53	78
94	60	USA-TX	SALT FORK-RED R. AGR.	35.0N 101.0W	37.0N 103.3W	68	HO	250	N	N	890812	21:12:48	163	242	52	78
94	61	USA-TX	LLANO-ESTACADO.PIVOT, IRR.	35.0N 102.5W	36.4N 101.7W	45	LO	250	N	N	890812	21:13:18	163	245	52	78
94	62	USA-TX	BRAZOS R/BASIN, AGR.	31.0N 97.0W	33.5N 98.9W	78	LO	250	N	N	890812	21:14:00	164	251	51	78
94	63	USA-TX	HOUSTON AREA, GALV. BAY	30.0N 95.5W	31.1N 96.6W	78	LO	250	N	N	890812	21:14:57	164	254	49	78
94	64	USA-TX	HOUSTON AREA, GALV. BAY	29.0N 95.0W	30.7N 96.3W	78	LO	250	N	N	890812	21:15:03	164	257	49	78
94	65	MEXICO	ARRECIPE ALACRAN,YUC.CST	22.5N 89.5W	24.3N 91.2W	78	LO	250	N	N	890812	21:17:06	164	267	45	78
94	66	MEXICO	CHETUMAL & BAY	19.0N 88.0W	20.7N 88.7W	85	LO	250	N	N	890812	21:18:13	164	271	43	78
94	67	BELIZE	CHETUMAL & BAY, REEFS	17.5N 88.5W	20.5N 88.5W	78	LO	250	N	N	890812	21:18:17	165	272	42	78
94	68	BELIZE	HONDURAS BAY, REEFS, CST	15.0N 89.0W	18.0N 87.0W	78	LO	250	N	N	890812	21:18:33	165	273	42	78
94	69	GUATEMALA	RIO MOTAGUA VALLEY	16.0N 89.5W	19.1N 87.6W	88	LO	250	N	N	890812	21:18:42	165	273	41	78
94	70	HONDURAS	HONDURAS GULF, FONSECA G	14.5N 88.5W	18.7N 87.3W	88	LO	250	N	N	890812	21:18:48	165	274	41	78
94	71	HONDURAS	GULF OF FONSECA	14.0N 87.0W	16.5N 86.2W	85	LO	250	N	N	890812	21:19:22	165	275	40	78
94	72	PERU	RIO MARANON, RIO UCAYALI	5.0S 74.0W	3.4S 74.2W	40	LO	100	N	N	890812	21:25:28	165	287	22	78
94	73	PERU	RIO UCAYALIPUNAHUA CAN	5.5S 73.5W	3.8S 74.0W	40	LO	100	N	N	890812	21:25:35	165	288	22	78
94	74	PERU	RIO UCAYALIRIO HUALLAGA	6.0S 73.5W	4.8S 73.7W	58	LO	100	N	N	890812	21:25:38	165	288	22	78
94	75	PERU	RIO MARANON, RAIN FOREST	5.0S 75.0W	4.8S 73.6W	58	LO	100	N	N	890812	21:25:53	165	288	21	78
94	76	PERU	RIO MARANON, RIO HUALLAGA	5.0S 76.0W	5.3S 73.1W	48	LO	100	N	N	890812	21:26:01	165	288	21	78
94	77	PERU	RIO UCAYALLIRAIN FOREST	6.8S 74.5W	5.9S 72.7W	58	LO	100	N	N	890812	21:26:13	165	288	20	78
94	78	PERU	RIO UCAYALLIRAIN FOREST	7.8S 75.0W	6.5S 72.0W	58	LO	100	N	N	890812	21:26:23	165	288	18	78
94	79	PERU	RIO UCAYALLIRAIN FOREST	8.5S 74.0W	7.2S 71.9W	48	LO	100	N	N	890812	21:26:38	165	288	18	78
94	80	BRAZIL	CRUZEIRO DO SUL,RJURUS	8.0S 73.0W	7.7S 71.7W	48	LO	100	N	N	890812	21:26:43	165	288	18	78
94	81	BRAZIL	NEW TOWNS	8.4S 73.1W	7.1W	48	LO	100	N	N	890812	21:27:02	165	289	17	78
94	82	BRAZIL	NEW DEVELOPMENT	16.1S 78.3W	18.1W	18	LO	100	O	Y	890812	21:27:28	165	289	16	78
94	83	BRAZIL	NEW DEVELOPMENT	16.2S 78.2W	18.1W	15	LO	100	O	Y	890812	21:27:32	165	289	16	78
94	84	BRAZIL	NEW DEVELOPMENT	18.5S 78.0W	20.1W	28	LO	100	O	Y	890812	21:27:36	165	289	16	78
94	85	BOLIVIA	RIO MADRE DE DIOS	13.8S 68.5W	11.2S 68.6W	15	LO	100	O	N	890812	21:27:50	165	289	15	78
94	86	BOLIVIA	RIO MADRE DE DIOS, LAKES	13.5S 68.0W	11.2S 68.5W	8	LO	100	O	N	890812	21:27:53	165	289	15	78
94	87	BOLIVIA	ALTIPLANO-PANORAMA	21.8S 68.0W	12.1S 68.1W	58	HO	100	O	N	890812	21:28:04	165	289	14	78
94	88	BOLIVIA	CONT. DIVIDE AREA, LAKES	17.8S 61.0W	14.5S 67.6W	28	HO	100	O	N	890812	21:28:08	165	289	12	78
94	89	BOLIVIA	L. TITICACA, ALTIPLANO	15.5S 69.0W	15.7S 66.0W	48	LO	100	O	N	890812	21:28:28	165	289	11	78
94	90	BOLIVIA	ANDES FRONT	16.5S 66.0W	16.7S 64.2W	78	LO	100	O	N	890812	21:28:28	165	289	10	78
95	1	USA-OR	SHAKE R. LEWISTON, CLARKST	46.0N 117.0W	46.3N 114.7W	48	LO	100	U	N	890809	22:15:11	163	238	46	23
95	2	USA-OR	PANORAMA-EASTERN DESERT	42.5N 118.5W	45.0N 113.0W	80	HO	100	U	N	890809	22:15:14	163	240	46	23
95	3	USA-MT	RED ROCK R. MADISON R.	45.0N 112.0W	44.4N 111.0W	75	LO	100	U	N	890809	22:15:53	163	243	45	23
95	4	USA-ID	IDAHO FALLS, SNAKE R.	43.0N 112.0W	44.3N 111.0W	78	LO	100	U	N	890809	22:16:00	163	244	45	23
95	5	USA-UT	GR.SALT LAKE, BEAR L.	41.5N 112.5W	43.4N 110.1W	78	LO	100	U	N	890809	22:16:28	163	246	45	23
95	6	USA-UT	GR.SALT LAKE, BEAR L.	41.5N 112.5W	43.1N 109.7W	78	LO	100	U	N	890809	22:16:26	163	247	44	23
95	7	USA-UT	GR.SALT LAKE, BEAR L.	41.0N 112.0W	42.0N 109.3W	75	LO	100	U	N	890809	22:16:32	163	247	44	23
95	8	USA-CO	ARKANSAS R. AGR. PLAINS	38.5N 103.0W	39.1N 104.6W	35	LO	100	N	N	890809	22:17:53	163	255	42	23
95	9	USA-CO	ARKANSAS R. AGR. PLAINS	38.5N 103.0W	39.0N 104.4W	35	LO	100	N	N	890809	22:17:54	163	255	42	23
95	10	USA-CO	ARKANSAS R. AGR. PLAINS	38.0N 103.0W	38.8N 104.2W	35	LO	100	N	N	890809	22:18:00	163	256	41	23
95	11	USA-TX	DALLAS-VERY DARK	32.5N 97.0W	32.5N 97.0W	0	KV	100	U	N	890809	22:20:57	164	264	37	23
95	12	USA-TX	GALVESTON BAY-VERY DARK	29.0N 94.5W	29.9N 95.5W	15	KV	100	U	N	890809	22:20:54	164	264	35	23
95	13	USA-LA	MS. R. NEW ORLEANS, DARK	30.0N 90.0W	29.3N 94.1W	38	LO	100	U	N	890809	22:21:29	164	271	34	23
95	14	USA-LA	MS. R. NEW ORLEANS, DARK	30.0N 90.0W	27.9N 93.9W	35	LO	100	U	N	890809	22:21:36	164	271	33	23
95	15	CLOUDS	TROPICAL STORM, CONV. CELL	6.5N 79.7W	100	HO	100	N	Y	890809	22:21:00	165	285	15	23	
95	16	CLOUDS	TROPICAL STORM, CONV. CELL	6.1N 79.5W	100	HO	100	N	Y	890809	22:21:17	165	285	15	23	
95	17	CLOUDS	TROPICAL STORM, CONV. CELL	5.2N 79.8W	100	HO	100	N	Y	890809	22:21:33	165	285	14	23	
95	18	CLOUDS	TROPICAL STORM, CONV. CELL	4.5N 78.5W	100	HO	100	N	Y	890809	22:21:44	165	285	13	23	
95	19	CLOUDS	TROPICAL STORM, CONV. CELL	2.9N 77.6W	100	HO	100	N	N	890809	22:21:14	165	285	12	23	
95	20	CLOUDS	TROPICAL STORM, CONV. CELL	0.9N 76.5W	100	HO	100	N	N	890809	22:21:50	165	286	10	23	
95	21	COLOMBIA	AMAZON R. TROP. STORM	2.0S 72.0W	1.5S 74.9W	68	LO	100	N	Y	890809	22:20:37	165	286	8	23
95	22	COLOMBIA	TROP. STORM, CONV. CELLS	1.0S 74.0W	2.7S 74.4W	75	LO	100	N	Y	890809	22:20:55	165	286	7	23
95	23	USSR-MIDDLE	LAKE BAYKAL	51.5N 105.0E	48.1N 104.0E	80	LO	100	N	N	890810	07:17:34	163	230	48	29
95	24	CHINA	CIRCLE DRAINAGE, LAKES	42.0N 116.0E	41.4N 114.0E	40	LO	100	N	N	890810	07:20:15	163	249	45	29
95	25	CHINA	DAMAGUN SHAN	41.0N 116.0E	40.0N 116.5E	50	LO	100	N	N	890810	07:20:44	163	252	44	29
95	26	CHINA	LAIZHOU BAY, YELLOW R.DS	37.5N 119.5E	38.1N 118.7E	75	LO	100	N	N	890810	07:21:24	164	255	43	29
95	27	CHINA	LAIZHOU BAY, WEST COAST	37.5N 120.0E	37.4N 119.5E	80	LO	100	N	N	890810	07:21:40	164	257	42	29
95	28	CHINA	SHANDON PENINSULA	37.5N 122.5E	36.8N 120.1E	75	LO	100	N	N	890810	07:21:51	164	258	42	29



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR	
95	29	CHINA	YELLOW SEA, COAST	35.5N 128.0E	36.0N 128.5E	60	HY	100 N Y 890610	07:22:07	164	250	41	29	
95	30	CHINA	YELLOW SEA, COAST	35.5N 128.0E	35.7N 121.5E	60	LO	100 N Y 890610	07:22:15	164	260	41	29	
95	31	CHINA	CHANGWEI R. EFFLUENT,CST	35.0N 128.0E	34.8N 122.2E	30	LO	100 N Y 890610	07:22:32	164	261	40	29	
95	32	CHINA	CHANGWEI R. EFFLUENT,CST	35.0N 128.0E	34.4N 122.6E	30	LO	100 N Y 890610	07:22:40	164	262	40	29	
95	33	SOUTH KOREA	JEJU I/STR. SOUTH END	34.5N 126.0E	32.8N 124.1E	75	LO	100 N Y 890610	07:23:12	164	264	39	29	
95	34	SOUTH KOREA	JEJU I/STR. SOUTH END	34.5N 126.0E	32.4N 124.5E	75	LO	100 N Y 890610	07:23:20	164	264	39	29	
95	35	CHINA	YANGTZE R. ESTUARY,TAI L.	31.5N 122.0E	30.6N 126.0E	50	LO	100 N H 890610	07:23:55	164	267	37	29	
95	36	JAPAN	AMAMI GUNTO	28.5N 129.5E	28.1N 128.2E	40	LO	100 N Y 890610	07:24:44	164	270	35	29	
95	37	JAPAN	AMAMI GUNTO	28.5N 129.5E	27.7N 128.4E	40	LO	100 N Y 890610	07:24:51	164	270	35	29	
95	38	JAPAN	OKINAWA, EDDIES	26.5N 128.0E	26.5N 129.4E	50	LO	100 N Y 890610	07:25:16	164	272	34	29	
95	39	JAPAN	OKINAWA, EDDIES	26.0N 127.5E	25.2N 129.9E	50	LO	100 N Y 890610	07:25:27	164	272	33	29	
95	40	SPAIN	RIO DUERO WATERSHED	43.0N	6.0W	44.1N	10.2W	60	LO	100 N H 890610	08:32:34	161	97	30
95	41	SPAIN	RIO DUERO WATERSHED	43.0N	6.0W	44.3N	9.9W	70	HO	100 N H 890610	08:32:39	161	97	30
95	42	SPAIN	RIO DUERO WATERSHED	43.0N	6.0W	44.5N	9.6W	70	LO	100 N H 890610	08:32:43	161	96	30
95	43	FRANCE	SEINE R. AGR. COAST	49.5N	1.0E	49.3N	0.6E	90	HY	100 N H 890610	08:34:58	151	110	36
95	44	FRANCE	SEINE R. AGR. COAST	49.5N	1.0E	50.0N	0.7E	75	HY	100 N H 890610	08:35:02	161	110	36
95	45	FRANCE	SEINE R. AGR. COAST	49.5N	1.0E	50.2N	1.1E	90	HY	100 N H 890610	08:35:07	161	111	36
95	46	DENMARK	BORNHOLM I. BALTIC SEA	55.0N	15.0E	55.2N	18.0E	70	LO	100 N H 890610	08:34:05	161	133	43
95	47	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	55.0N	49.0E	56.9N	44.0E	75	LO	100 N H 890610	08:42:17	162	174	49
95	48	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	55.0N	49.0E	56.9N	47.2E	75	LO	100 N H 890610	08:42:21	162	175	49
95	49	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	55.0N	49.5E	56.8N	47.7E	75	LO	100 N H 890610	08:42:25	162	176	49
95	50	USSR-EUROPEAN	VOLGA R. KUT. YSHEV RES.	55.0N	49.0E	56.3N	52.7E	75	LO	100 N H 890610	08:43:00	162	183	49
95	51	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	55.0N	49.0E	56.2N	53.7E	90	LO	100 N H 890610	08:43:10	162	185	49
95	52	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	55.0N	49.5E	56.1N	54.3E	90	LO	100 N H 890610	08:43:23	162	186	49
95	53	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.5N	60.0E	52.2N	64.2E	25	LO	100 N H 890610	08:43:37	162	200	50
95	54	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.0N	60.0E	53.1N	64.5E	25	LO	100 N H 890610	08:43:40	162	200	50
95	55	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.0N	60.0E	53.0N	64.7E	25	LO	100 N H 890610	08:43:43	162	200	50
95	56	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.5N	60.0E	52.2N	71.2E	20	LO	100 N H 890610	08:44:00	162	213	50
95	57	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.5N	60.0E	52.1N	71.5E	20	LO	100 N H 890610	08:44:13	162	213	50
95	58	USSR-MIDDLE	LAKE TENGIZ, STEPPE, AGR	50.5N	60.0E	52.0N	72.0E	25	LO	100 N H 890610	08:44:18	162	214	50
95	59	USSR-MIDDLE	KARAGANDA, FIRES, STEPPE	49.0N	73.0E	51.3N	73.7E	40	LO	100 N H 890610	08:44:37	162	217	50
95	60	USSR-MIDDLE	KARAGANDA, FIRES, STEPPE	49.0N	73.0E	51.3N	73.0E	40	LO	100 N H 890610	08:44:40	162	218	49
95	61	USSR-MIDDLE	KARAGANDA, FIRES, STEPPE	49.0N	73.5E	51.1N	74.0E	40	LO	100 N H 890610	08:44:46	162	218	49
95	62	USSR-MIDDLE	LAKE BALIKASH, STEPPE	46.5N	74.5E	50.7N	75.0E	40	HO	100 N H 890610	08:44:57	162	220	49
95	63	USSR-MIDDLE	LAKE BALIKASH, STEPPE	46.5N	74.5E	50.6N	75.6E	40	HO	100 N H 890610	08:47:00	162	220	49
95	64	USSR-MIDDLE	LAKE BALIKASH, STEPPE	46.0N	75.0E	50.4N	76.0E	40	HO	100 N H 890610	08:47:04	162	221	49
95	65	USSR-MIDDLE	L. ALAKOL, L. SASYKOL	46.5N	81.5E	47.0N	83.2E	45	LO	100 N H 890610	08:48:36	163	233	48
95	66	USSR-MIDDLE	L. ALAKOL, L. SASYKOL	46.0N	82.0E	46.8N	83.6E	45	LO	100 N H 890610	08:48:41	163	234	48
95	67	USSR-MIDDLE	L. ALAKOL, L. SASYKOL	46.5N	82.0E	46.5N	84.0E	50	LO	100 N H 890610	08:48:47	163	235	48
95	68	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N	82.0E	46.1N	84.0E	30	LO	100 N H 890610	08:48:54	163	236	47
95	69	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N	82.0E	46.0N	85.0E	30	LO	100 N H 890610	08:49:01	163	237	47
95	70	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N	82.5E	45.8N	85.3E	30	LO	100 N H 890610	08:49:05	163	237	47
95	71	CHINA	TAKLA MAKAN, TIEN SHAN	42.5N	83.0E	45.5N	86.0E	40	LO	100 N H 890610	08:50:00	163	243	46
95	72	CHINA	TAKLA MAKAN, TIEN SHAN	42.5N	84.0E	45.3N	89.2E	40	LO	100 N H 890610	08:50:04	163	244	46
95	73	CHINA	TAKLA MAKAN, TIEN SHAN	42.0N	84.5E	45.1N	89.4E	40	LO	100 N H 890610	08:50:08	163	244	46
95	74	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N	87.0E	42.0N	89.0E	50	LO	100 N H 890610	08:50:15	163	245	46
95	75	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N	87.0E	42.7N	90.0E	50	LO	100 N H 890610	08:50:17	163	245	46
95	76	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N	87.0E	42.6N	90.2E	50	LO	100 N H 890610	08:50:20	163	246	46
95	77	CHINA	SHULE R. OUTWASH FAN	40.0N	96.5E	36.5N	94.1E	50	LO	100 N H 890610	08:51:27	163	252	44
95	78	CHINA	SHULE R. OUTWASH FAN	40.5N	96.5E	38.3N	94.6E	50	LO	100 N H 890610	08:51:31	163	253	44
95	79	CHINA	SHULE R. OUTWASH FAN	40.0N	96.5E	38.1N	94.0E	50	LO	100 N H 890610	08:51:35	164	253	43
95	80	CHINA	SHULE R. OUTWASH FAN	40.0N	96.5E	37.9N	94.0E	50	LO	100 N H 890610	08:52:01	164	253	43
95	81	CHINA	SHULE R. OUTWASH FAN	40.5N	96.5E	37.7N	96.1E	50	LO	100 N H 890610	08:52:04	164	254	43
95	82	CHINA	SHULE R. OUTWASH FAN	40.5N	96.5E	37.6N	96.3E	60	LO	100 N H 890610	08:52:07	164	254	42
95	83	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	33.0N	99.0E	90	LO	100 N H 890610	08:53:00	164	260	41
95	84	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	34.0N	99.2E	90	LO	100 N H 890610	08:53:03	164	261	41
95	85	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	34.7N	99.3E	90	LO	100 N H 890610	08:53:05	164	261	40
95	86	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	33.9N	100.1E	90	LO	100 N H 890610	08:53:22	164	262	40
95	87	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	33.7N	100.2E	90	LO	100 N H 890610	08:53:25	164	262	40
95	88	CHINA	YANGTZE R.NING CHING MTH	32.5N	90.0E	33.5N	100.4E	90	LO	100 N H 890610	08:53:29	164	263	40
95	89	CHINA	DAXUE SHAN	30.0N	101.5E	30.8N	102.9E	85	HY	100 N H 890610	08:54:23	164	264	38
95	90	CHINA	DAXUE SHAN	30.0N	101.5E	30.7N	103.0E	HY	100 N H 890610	08:54:25	164	267	38	
95	91	CHINA	DAXUE SHAN	30.0N	101.5E	30.5N	103.2E	85	LO	100 N H 890610	08:54:29	164	267	37
95	92	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N	105.0E	28.2N	105.1E	30	HY	100 N H 890610	08:55:13	164	270	36
95	93	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N	105.0E	28.0N	105.2E	30	HY	100 N H 890610	08:55:16	164	270	36
95	94	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N	105.0E	27.9N	105.3E	30	HY	100 N H 890610	08:55:19	164	270	35
95	95	CHINA	BEIPAN R. WUMENG MTHS.	26.5N	105.5E	27.2N	105.9E	50	HY	100 N H 890610	08:55:32	164	271	35
95	96	CHINA	BEIPAN R. WUMENG MTHS.	26.5N	105.5E	27.0N	106.0E	50	HY	100 N H 890610	08:55:35	164	271	35
95	97	CHINA	BEIPAN R. WUMENG MTHS.	26.5N	105.5E	26.9N	106.1E	50	LO	100 N H 890610	08:55:38	164	271	35
95	98	CHINA	FENG HUAN MTHS.	26.0N	107.0E	26.0N	106.3E	60	HY	100 N H 890610	08:55:54	164	272	34

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL OR
95	99	CHINA	FENG HUAN MTNS.	26.0N 107.0E	25.9N 106.8E	69	NY	100	N	N	890810	06:55:54	164 272 34 30
95	100	CHINA	FENG HUAN MTNS.	26.0N 107.0E		60	LO	100	N	N			
96	0 A	CANADA-N	SW AREA, LA POINTE BAY	48.0N 58.0W		20	LO	250	N	N			
96	0 B	CANADA-N	SW AREA, WHITE BEAR R.	48.0N 57.5W		15	LO	250	N	N			
96	0 C	CANADA-N	CENTRAL SOUTH COAST	48.0N 56.5W		10	LO	250	N	N			
96	0 D	CANADA-N	SOUTH CENTRAL COAST	48.0N 55.5W		15	LO	250	N	N			
96	0 E	CANADA-N	CENTRAL AREA	48.5N 56.5W		15	LO	250	N	N			
96	0 F	CANADA-N	CENTRAL AREA	49.0N 56.5W		25	LO	250	N	N			
96	0 G	CANADA-N	NORTH CENTRAL AREA	49.0N 56.0W		15	LO	250	N	N			
96	0 H	CANADA-N	NORTH CENTRAL AREA	49.5N 55.5W		10	LO	250	N	N			
96	0 J	CANADA-N	NORTHEAST AREA	49.0N 54.5W		0	LO	250	N	N			
96	0 K	CANADA-N	EAST AREA	48.5N 54.0W		10	LO	250	N	N			
96	1	USSR-EUROPEAN	AGRICULTURE-CLOUDY		50.4N 38.0E	70	LO	250	N	N	890810	11:47:58	163 220 50 32
96	2	USSR-EUROPEAN	L. SYVASH-ND. POND, AGR.	46.0N 34.0E	49.2N 32.1E	40	LO	250	N	N	890810	11:48:33	163 225 49 32
96	3	USSR-EUROPEAN	UTLYUK LAG, L.MOLOCHMOYE	46.5N 35.5E	48.2N 34.9E	10	LO	250	N	N	890810	11:49:00	163 229 49 32
96	4	USSR-EUROPEAN	L. SYVASH-ND. POND, AGR.	46.0N 34.0E	47.5N 34.3E	20	LO	250	N	N	890810	11:49:18	163 231 48 32
96	5	USSR-EUROPEAN	KERCHENSKIY STR. BLSEA	45.0N 36.5E	45.3N 40.2E	20	LO	250	N	N	890810	11:50:13	163 238 47 32
96	6	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.5N 40.0E	44.0N 40.0E	35	LO	250	N	Y	890810	11:50:22	163 239 47 32
96	7	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 40.5E	44.4N 41.5E	25	LO	250	N	Y	890810	11:50:33	163 240 47 32
96	8	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 40.5E	44.1N 42.6E	20	LO	250	N	Y	890810	11:50:40	163 241 47 32
96	9	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 41.0E	43.0N 42.4E	15	LO	250	N	Y	890810	11:50:47	163 242 47 32
96	10	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	42.5N 41.5E	43.5N 42.0E	10	LO	250	N	Y	890810	11:50:55	163 243 47 32
96	11	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	42.5N 42.0E	43.1N 43.5E	5	LO	250	N	Y	890810	11:51:04	163 244 46 32
96	12	USSR-EUROPEAN	KURA R. GORG. KASHUKI	42.0N 44.0E	42.6N 44.2E	15	NY	250	N	N	890810	11:51:15	163 245 46 32
96	13	USSR-EUROPEAN	ARAGVI R. RESERVOIR	42.0N 44.5E	42.0N 44.9E	10	NY	250	N	N	890810	11:51:27	163 246 46 32
96	14	USSR-EUROPEAN	KURA R. RUSTAVI	41.5N 45.0E	41.6N 45.5E	20	NY	250	N	N	890810	11:51:37	163 247 45 32
96	15	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.0E	41.3N 45.0E	30	LO	250	N	Y	890810	11:51:42	163 248 45 32
96	16	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.5E	41.1N 46.2E	40	LO	250	N	Y	890810	11:51:48	163 248 45 32
96	17	USSR-EUROPEAN	KURA R. NEW RESERVOIR	41.0N 46.0E	40.7N 46.4E	10	NY	250	N	Y	890810	11:51:55	163 249 45 32
96	18	USSR-EUROPEAN	KURA R. MINGECHAURS RES.	41.0N 46.5E	40.5N 47.0E	10	LO	250	N	Y	890810	11:52:01	163 250 45 32
96	19	USSR-EUROPEAN	KURA R. MINGECHAURS RES.	41.0N 47.0E	40.2N 47.2E	30	LO	250	N	Y	890810	11:52:06	163 250 45 32
96	20	IRAN	LAKE ORMUYEH	30.0N 45.0E	30.0N 47.0E	10	LO	250	N	Y	890810	11:52:15	163 251 44 32
96	21	IRAN	L. ORMUYEH-BURA CHALLU	30.0N 45.5E	30.3N 48.3E	10	LO	250	N	Y	890810	11:52:25	164 252 44 32
96	22	IRAN	L. ORMUYEH-BURA CHALLU	37.5N 45.5E	38.1N 48.7E	10	LO	250	N	Y	890810	11:52:31	164 253 44 32
96	23	IRAN	L. ORMUYEH, EDDIES	37.5N 45.5E	38.7N 49.0E	10	LO	250	N	Y	890810	11:52:38	164 253 44 32
96	24	IRAN	L. HOWZ SOLTAN, GAREN ST	35.0N 51.0E	35.0N 52.6E	0	LO	250	N	N	890810	11:53:47	164 259 41 32
96	25	IRAN	KAMAK LAKE	34.5N 51.5E	35.2N 52.0E	0	LO	250	N	N	890810	11:53:54	164 260 41 32
96	26	IRAN	L. HOWZ SOLTAN, SHUR ST.	35.0N 51.0E	34.7N 53.1E	0	LO	250	N	N	890810	11:54:01	164 260 41 32
96	27	IRAN	L. KAMAK, MT. SEVAN	34.5N 52.0E	34.0N 53.6E	0	LO	250	N	N	890810	11:54:07	164 261 41 32
96	28	IRAN	GAVKUMH MARSH, AGR.	32.0N 52.0E	33.0N 54.1E	0	LO	250	N	N	890810	11:54:17	164 262 40 32
96	29	IRAN	KATBAND FAULT, KERMAN	30.5N 57.5E	30.7N 57.0E	0	NY	250	N	Y	890810	11:55:20	164 266 38 32
96	30	IRAN	KATBAND FAULT, SHAHDAZ	30.5N 57.5E	30.5N 57.2E	0	NY	250	N	Y	890810	11:55:24	164 266 38 32
96	31	IRAN	KATBAND FAULT	30.6N 57.5E	30.3N 57.4E	0	NY	250	N	Y	890810	11:55:28	164 267 38 32
96	32	IRAN	KATBAND FAULT, TAMRUD ST	28.5N 58.0E	30.0N 57.6E	0	NY	250	N	Y	890810	11:55:33	164 267 38 32
96	33	IRAN	MT. BAZMAN	28.0N 60.0E	27.6N 56.6E	5	NY	250	N	N	890810	11:56:19	164 279 36 32
96	34	IRAN	MT. KAHST, RUTAK STREAM	27.0N 61.5E	25.6N 61.2E	10	LO	250	N	Y	890810	11:56:47	165 272 34 32
96	35	IRAN	MT. KAHST, BURAG MTNS.	27.5N 61.5E	25.5N 61.2E	5	LO	250	N	Y	890810	11:56:59	165 272 34 32
96	36	IRAN	BURAG MTNS.	27.5N 61.0E	25.3N 61.1E	5	LO	250	N	N	890810	11:57:02	165 272 34 32
96	37	IRAN	ARABIAN SEA, CST. RAS NUN	25.0N 62.0E	24.0N 61.7E	40	NY	250	N	N	890810	11:57:12	165 273 34 32
96	38	FED REP OF GERMANY	AIRFIELDS, MOSEL R. AGR.	50.5N 6.5E	50.1N 7.7E	00	LO	250	N	N	890810	13:18:10	163 221 50 33
96	39	FED REP OF GERMANY	AIRFIELDS, MOSEL R. AGR.	50.0N 6.5E	50.1N 7.9E	30	LO	250	N	N	890810	13:18:41	163 221 50 33
96	40	FED REP OF GERMANY	BNV R. SALZACH R. AGR.	48.5N 12.5E	48.0N 11.5E	50	LO	250	N	N	890810	13:19:26	163 227 49 33
96	41	YUGOSLAVIA	VELEBIT MTNS, PAG I.	45.0N 15.0E	47.2N 13.0E	70	LO	250	N	N	890810	13:19:57	163 231 49 33
96	42	YUGOSLAVIA	VELEBIT MTNS, PAG I.	44.5N 15.0E	47.1N 14.0E	70	LO	250	N	N	890810	13:19:59	163 232 48 33
96	43	YUGOSLAVIA	VELEBIT MTNS, ZADAR	44.0N 15.5E	47.0N 14.2E	60	LO	250	N	N	890810	13:20:02	163 232 48 33
96	44	ITALY	VENICE, GULF OF VENICE	45.5N 13.0E	46.2N 15.6E	75	LO	250	N	N	890810	13:20:21	163 234 48 33
96	45	ITALY	TAGLIAMENTO R. NEDUNA R.	46.0N 13.0E	46.0N 15.0E	00	LO	250	N	N	890810	13:20:27	163 235 48 33
96	46	YUGOSLAVIA	SPLIT, BRAC I. HYAR I.	43.5N 16.5E	43.5N 16.0E	40	LO	250	N	N	890810	13:20:40	163 237 48 33
96	47	YUGOSLAVIA	CST. PELIESAC PENHVAR I.	43.0N 17.5E	43.4N 17.0E	40	LO	250	N	N	890810	13:20:42	163 237 48 33
96	48	ITALY	GARGANO PEN., COAST	42.0N 16.0E	45.2N 17.4E	15	LO	250	N	N	890810	13:20:47	163 238 48 33
96	49	ADRIATIC SEA	EDDIES, WIND DOWNDRAFT	43.5N 14.5E	44.0N 18.0E	5	LO	250	N	N	890810	13:20:54	163 239 47 33
96	50	ALBANIA	ADRIATIC SEA COAST	41.5N 19.5E	43.1N 20.5E	20	LO	250	N	Y	890810	13:21:35	163 243 47 33
96	51	ALBANIA	ADRIATIC SEA, CST. TIRANE	41.5N 19.5E	43.0N 20.6E	15	LO	250	N	Y	890810	13:21:37	163 243 46 33
96	52	ALBANIA	ADRIATIC SEA COAST	40.5N 19.5E	42.0N 20.8E	20	LO	250	N	Y	890810	13:21:40	163 244 46 33
96	53	GREECE	KERKIRA I. KERKIRAS CHAN	39.5N 20.0E	42.7N 21.0E	25	LO	250	N	N	890810	13:21:43	163 244 46 33
96	54	GREECE	CST. LEVKAS I. ITHAKI I.	38.5N 21.0E	42.5N 21.3E	30	LO	250	N	N	890810	13:21:47	163 245 46 33
96	55	GREECE	PATRAIKOS BAY, PATRAI	38.0N 22.0E	42.0N 22.0E	30	LO	250	N	N	890810	13:22:00	163 246 46 33
96	56	GREECE	KORINTHIAKOS BAY	37.0N 22.5E	41.5N 22.2E	40	LO	250	N	N	890810	13:22:02	163 246 46 33
96	57	GREECE	LAKONIKOS BAY, SPARTI	36.5N 22.5E	38.0N 25.0E	20	LO	250	N	N	890810	13:23:07	164 253 44 33
96	58	GREECE	AEGEAN SEA, TIRHOS LEDDY	37.5N 25.0E	37.0N 27.2E	0	LO	250	N	Y	890810	13:23:30	164 255 43 33

**TABLE 4-3. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LOH	NADIR LAT LOH	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
96	59	GREECE	AEGEAN SEA ANDROS I.	37.5N 23.2E	37.6N 27.1E	5 LO	250 N Y 890810	13:23:34	164 255 43 33
96	60	CRETE	CENTRAL AREA	35.8N 25.0E	34.7N 28.3E	15 LO	250 N N 890810	13:23:51	164 257 43 33
96	61	CRETE	WESTERN AREA	35.5N 24.5E	34.5N 28.5E	15 LO	250 N N 890810	13:23:54	164 257 43 33
96	62	CYPRUS	LIMASSOL WEST END	35.8N 33.8E	35.4N 29.7E	10 LO	250 N N 890810	13:24:19	164 259 42 33
96	63	CYPRUS	LIMASSOL U.K. SEA AREA	34.5N 33.0E	33.2N 31.3E	5 LO	250 N N 890810	13:25:02	164 262 40 33
96	64	ISRAEL	DEAD SEA, RIVER JORDAN	31.5N 35.5E	30.2N 34.4E	8 LO	250 N Y 890810	13:26:00	164 266 38 33
96	65	JORDAN	DEAD SEA, WADI JEIB	31.8N 35.5E	30.1N 34.5E	8 LO	250 N Y 890810	13:26:02	164 267 38 33
96	66	JORDAN	WADI ARABA, WADI EL JEIB	30.5N 35.5E	30.0N 34.6E	6 LO	250 N Y 890810	13:26:05	164 267 38 32
96	67	JORDAN	GULF OF AQABA, AQABA	29.3N 35.0E	29.6N 34.9E	8 LO	250 N Y 890810	13:26:12	164 267 38 33
96	68	JORDAN	AQABA, WADI ARABA	29.5N 35.0E	29.5N 35.0E	8 LO	250 N Y 890810	13:26:18	164 267 38 33
96	69	ISRAEL	WADI ARABA, WADI EL JEIB	30.8N 35.0E	29.4N 35.1E	8 LO	250 N Y 890810	13:26:16	164 267 37 33
96	70	JORDAN	WADI EL JEIB, ESH SHARA	30.5N 35.5E	29.3N 35.2E	8 LO	250 N Y 890810	13:26:18	164 268 37 33
96	71	JORDAN	WADI EL JEIB, DEAD SEA	31.8N 35.5E	29.2N 35.3E	8 LO	250 N Y 890810	13:26:21	164 268 37 33
96	72	ISRAEL	BEERSHEVA, COAST, AGR	31.5N 35.0E	28.9N 35.5E	8 LO	250 N N 890810	13:26:25	164 268 37 33
96	73	ISRAEL	IS/EG BOUNDARY, SINAI	29.8N 34.5E	28.8N 35.6E	8 LO	250 N Y 890810	13:26:27	164 268 37 33
96	74	EGYPT	WADI ARISH, MT HALAL	30.5N 34.5E	28.7N 35.7E	8 LO	250 N Y 890810	13:26:30	164 268 37 33
96	75	SAUDI ARABIA	RED SEA CST, UMM QUSUR I	28.8N 35.6E	28.4N 36.8E	8 NV	250 N N 890810	13:26:36	164 269 37 33
96	76	SAUDI ARABIA	STR. TIRAN, TIRAN I.	28.8N 34.5E	28.3N 36.0E	8 LO	250 N N 890810	13:26:38	164 269 37 33
96	77	SAUDI ARABIA	STR. TIRAN, TIRAN I.	28.8N 34.5E	27.7N 34.5E	8 LO	250 N N 890810	13:26:40	164 270 36 33
96	78	EGYPT	SINAI PEN. DUST STORM, PAN	28.5N 34.5E		5 NO	250 N N		
96	79	EGYPT	SINAI PEN. DUST STORM, PAN	29.8N 34.8E		5 NO	250 N N		
96	80	EGYPT	SINAI PEN. DUST STORM, PAN	29.8N 34.8E		5 NO	250 N N		
96	81	USA-AZ	CHINLE WASH. DEFENSE PLA	36.8N 109.5W	34.9N 111.2W	42 LO	250 N N 890810	14:31:56	161 86 21 34
96	82	USA-NM	CHACO R. SAN JUAN BASIN	36.8N 109.6W	37.2N 110.5W	44 LO	250 N N 890810	14:32:02	161 87 22 34
96	83	USA-NM	SAN JUAN R. RIO GRANDE	37.8N 107.6W	37.2N 110.5W	38 LO	250 N N 890810	14:32:10	161 87 22 34
96	84	USA-NM	N/S PLATTE R.L. MC CONAUG	41.8N 101.5W	43.3N 103.5W	48 LO	250 N N 890810	14:34:51	161 85 28 34
96	85	USA-SO	MO. R. PLAINS, AGR.	45.8N 98.8W	44.3N 101.9W	50 LO	250 N N 890810	14:34:56	161 96 29 34
96	86	USA-NM	U/I RED L. LAKE REGION	47.5N 105.8W	46.8N 99.8W	28 LO	250 N N 890810	14:35:18	161 100 31 34
96	87	USA-MN	INTERNATIONAL FALLS, AGR	48.8N 92.5W	47.3N 96.5W	28 LO	250 N N 890810	14:35:49	161 102 32 34
96	88	USA-MN	L. SUPERIOR, KEWEENAW PEN	47.5N 89.5W	48.4N 94.7W	36 LO	250 N N 890810	14:36:17	161 105 33 34
96	89	USA-MN	L. SUPERIOR, APOSTLE IS	46.5N 90.8W	49.4N 92.6W	20 LO	250 U N 890810	14:36:43	161 107 34 34
96	90	USA-MN	L. SUPERIOR, KEWEENAW PEN	47.5N 87.5W	49.7N 91.9W	32 LO	250 N N 890810	14:36:52	161 106 35 34
96	91	USA-WI	L. MI. L. SUP. GREEN BAY	45.8N 87.6W	50.2N 90.7W	30 NO	250 N N 890810	14:37:45	161 110 35 34
96	92	USA-MN	L. MI. L. SUP. STR. MACON	46.8N 85.5W	50.4N 90.5W	40 NO	250 N N 890810	14:37:51	161 110 36 34
96	93	CANADA-O	MOOSE R. NAURICAUKA P.	48.5N 82.6W	52.3N 85.1W	35 LO	250 N N 890810	14:38:11	161 117 38 34
96	94	CANADA-O	CANAPISCAN LAKE	54.8N 78.5W	55.5N 72.4W	45 LO	250 N N 890810	14:40:18	161 134 43 34
96	95	PORTUGAL	ATLANTIC CST, SRESTRALA	41.8N 8.8W	44.3N 5.6W	34 LO	250 N N 890810	14:51:28	163 238 48 34
96	96	PORTUGAL	ATLANTIC CST, SRESTRALA	39.8N 8.8W	44.5N 4.6W	35 NO	250 N N 890810	14:51:34	163 238 47 34
97	0 A	BRITAIN	BRESTOL CH. TIDE LINE	51.5N 4.8W		25 LO	100 N N		
97	0 B	BRITAIN	BRESTOL CH. TIDE LINE	51.8N 4.6W		25 LO	100 N N		
97	0 C	BRITAIN	BRESTOL CH. TIDE LINE	51.5N 3.5W		25 LO	100 N N		
97	0 D	BRITAIN	BRESTOL CH. TIDE LINE	51.8N 3.6W		25 LO	100 N N		
97	0 E	ITALY	H. CENTRAL, PANORAMA	42.5N 11.5E		30 LO	100 N N		
97	0 F	ITALY	CENTRAL, PANORAMA	42.8N 13.0E		30 LO	100 N N		
97	0 G	ITALY	CENTR. YUGO. CST. PANOR.	42.5N 15.0E		25 LO	100 N N		
97	0 H	ITALY	S. CENT. YUGO. CST. PANOR.	42.8N 16.5E		25 LO	100 N N		
97	0 J	ITALY	BOOT AREA, SKILY, PAN.	48.5N 15.0E		25 LO	100 N N		
97	0 K	ITALY	S. BOOT, SKILY, PANORAMA	39.5N 17.5E		20 NO	100 N N		
97	0 L	SKILY	PANORAMA	36.5N 15.5E		20 NO	100 N N		
97	0 M	EGYPT	NILE DELTA, ALEXANDRIA	31.8N 31.0E		5 LO	100 N N		
97	0 N	EGYPT	NILE DELTA, ALEXANDRIA	31.8N 30.5E		8 LO	100 N N		
97	0 P	EGYPT	NILE DELTA, CAIRO, SUEZ CA	30.5N 32.0E		5 LO	100 N N		
97	0 Q	EGYPT	SUEZ CANAL, CAIRO, SUEZ	30.8N 32.5E		5 LO	100 N N		
97	0 R	EGYPT	CAIRO, NILE, RUSMETIA CA	30.8N 31.0E		8 LO	100 N N		
97	0 S	EGYPT	SINAI PEN. RED SEA, PAN.	29.8N 34.0E		18 NO	100 N N		
97	0 T	EGYPT	SINAI PEN. PANORAMA	29.5N 34.5E		18 NO	100 N N		
97	0 U	EGYPT	SINAI PEN. PANORAMA	29.8N 34.0E		18 NO	100 N N		
97	0 V	SAUDI ARABIA	BAHR AS SAFLRUB KHALI	17.5N 47.0E		50 LO	100 N N		
97	1	FRANCE	NW COAST AREA-FINISTERE	48.5N 4.5W	46.5N 7.9W	30 LO	250 N N 890810	14:54:45	163 233 48 34
97	2	FRANCE	NW COAST AREA-FINISTERE	48.8N 4.5W	46.1N 7.1W	40 LO	250 N N 890810	14:54:54	163 235 48 34
97	3	FRANCE	W. CST. AREA, ST. NAZAIRE	47.5N 2.5W	45.5N 6.2W	48 LO	250 N N 890810	14:51:07	163 236 48 34
97	4	SPAIN	BISCAY CST, CANTABRICA MT.	43.5N 6.8W	44.7N 4.8W	48 LO	250 N N 890810	14:51:27	163 239 48 34
97	5	SPAIN	PISURGA R. BURGOS, AGR.	42.5N 3.5W	44.5N 4.5W	30 LO	250 N N 890810	14:51:32	163 239 47 34
97	6	SPAIN	CANTABRICA MTIS, RESERV.	43.8N 3.5W	44.3N 4.3W	35 LO	250 N N 890810	14:51:35	163 240 47 34
97	7	SPAIN	RIO ESLA VALLEY, AGR.	42.5N 5.0W	43.8N 3.5W	20 LO	250 N N 890810	14:51:47	163 241 47 34
97	8	SPAIN	MED. CST.	41.8N 1.5E	41.8N 0.7W	50 LO	250 N N 890810	14:52:32	163 246 46 34
97	9	SPAIN	MED. COAST	40.5N 0.5E	41.5N 0.4W	40 LO	250 N N 890810	14:52:38	163 247 46 34
97	10	ALGERIA	MED. COAST, BEJAIA	37.0N 5.0E	37.4N 4.5E	20 LO	250 N N 890810	14:54:05	164 255 43 34
97	11	ALGERIA	MED. COAST, SKIKFA, COLLO	37.0N 6.5E	37.8N 4.9E	18 LO	250 N N 890810	14:54:13	164 256 43 34
97	12	ALGERIA	MED. CST. SKIKFA, ANNABA	37.0N 7.0E	36.7N 5.4E	8 LO	250 N N 890810	14:54:21	164 256 43 34

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	8	DATE	GMT	SUN AL	AZ	EL	OR	
97	13	TUNISIA	TUNIS. BIZERTE. MED.CST	37.8N 10.0E 34.9N 7.1E	0 LO	250	N	H	890810	14:54:54	164	259	42	34			
97	14	LIBYA	TRIPOLIEZ-ZAHIA.MED.CST	33.0N 13.0E 32.0N 9.9E	0 LO	250	N	H	890810	14:55:55	164	264	40	34			
97	15	LIBYA	TRIPOLIEZ-ZAHIA.MED.CST	33.0N 13.0E 31.5N 10.4E	0 LO	250	N	H	890810	14:56:45	164	265	39	34			
97	16	LIBYA	VOLC-UAU' EN NAMUS	25.0N 17.5E 24.1N 16.0E	0 LO	250	N	Y	890810	14:58:28	165	273	34	34			
97	17	LIBYA	VOLC-UAU' EN NAMUS	25.0N 17.5E	0 LO	250	N	Y									
97	18	USA-WA	COLOMBIA BASIN. COLR.	47.5N 129.5W	40 HO	250	N	H									
97	19	USA-WA	COLOMBIA BASIN. COLR.	47.5N 128.5W	40 HO	250	N	H									
97	20	USA-WA	COLOMBIA BASIN. COLR.	47.0N 128.0W 52.4N 107.7W	40 HO	250	N	H	890810	16:00:42	161	117	38	35			
97	21	CANADA-S	L. DIEFENBAKER. AGR.	51.0N 107.0W 54.1N 100.8W	30 LO	250	N	H	890810	16:09:54	161	126	41	35			
97	22	MADEIRA ISLANDS	PORTO SANTO	33.6N 16.5W 35.1N 16.0W	25 LO	250	N	H	890810	16:25:25	164	259	42	35			
97	23	MADEIRA ISLANDS	MADEIRA I. FUNCHAL	33.0N 17.0W 34.9N 15.8W	20 LO	250	N	Y	890810	16:25:25	164	259	42	35			
97	24	MADEIRA ISLANDS	MADEIRA I. FUNCHAL	33.0N 17.0W 34.6N 15.5W	20 LO	250	N	Y	890810	16:25:34	164	260	42	35			
97	25	MADEIRA ISLANDS	DESERTA GRANDE. BUGO	32.5N 16.5W 34.1N 15.1W	40 LO	250	N	H	890810	16:25:44	164	260	41	35			
97	26	MADEIRA ISLANDS	MADEIRA I. OCEAN WAKE	32.5N 17.0W 33.5N 16.4W	15 LO	250	N	H	890810	16:25:57	164	261	41	35			
97	27	MADEIRA ISLANDS	MADEIRA I. OCEAN WAKE	32.5N 17.0W 33.1N 16.1W	20 LO	250	N	H	890810	16:26:04	164	262	41	35			
97	28	MAURITANIA	SAND STORM. ATLANTIC CST		26.2N 8.8W	40 LO	250	N	Y	890810	16:26:06	164	270	36	35		
97	29	MAURITANIA	SAND STORM. ATLANTIC CST		26.0N 8.8W	40 LO	250	N	Y	890810	16:26:09	164	270	36	35		
97	30	MAURITANIA	SAND STORM. ATLANTIC CST		26.5N 8.5W	40 LO	250	N	Y	890810	16:26:12	164	271	36	35		
97	31	MAURITANIA	SAND STORM		26.3N 8.3W	50 LO	250	N	Y	890810	16:26:16	164	271	36	35		
97	32	MAURITANIA	SAND STORM		26.2N 8.5W	50 LO	250	N	Y	890810	16:26:18	164	271	36	35		
97	33	MAURITANIA	SAND STORM		26.0N 8.1W	60 LO	250	N	Y	890810	16:26:22	164	271	35	35		
97	34	BEHN	COTONOU. L.NOKOUERRES	6.5N 2.5E 7.2N 4.1E	5 LO	250	N	H	890810	16:34:05	165	284	20	35			
97	35	NIGERIA	LAGOS. EBUTE METTA. CST	6.5N 3.5E 6.7N 4.4E	10 LO	250	N	H	890810	16:34:14	165	284	19	35			
97	36	USA-AK	ST.ELIAS MTHS.GLACIERS	59.5N 139.0W 53.3N 127.5W	30 HO	250	N	H	890810	17:39:55	161	120	39	34			
97	37	USA-AK	ST.ELIAS MTHS.GLACIERS	60.8N 140.6W 53.6N 126.0W	30 HO	250	N	H	890810	17:39:55	161	122	39	34			
97	38	USA-AK	WRANGELL/ST.ELIAS MTHS.	61.0N 139.5W 53.7N 126.0W	18 HO	250	N	H	890810	17:40:00	161	122	39	34			
97	39	USA-AK	WRANGELL/ST.ELIAS MTHS.	60.5N 139.0W 54.6N 123.9W	20 HO	250	N	H	890810	17:40:25	161	126	40	34			
97	40	CANADA-DC	ROCKY MTHS./TRENCHFRASER	54.0N 120.5W 55.7N 117.1W	30 LO	250	N	H	890810	17:41:29	161	134	43	36			
97	41	CANADA-Q	CLEAR LAKES-PART CLOY	56.0N 74.5W 54.1N 73.0W	75 LO	250	N	H	890810	17:48:02	162	199	50	34			
97	42	CANADA-Q	LAC MANICOUAGAN	52.0N 67.5W 52.5N 67.7W	40 LO	250	N	H	890810	17:48:57	162	200	50	34			
97	43	CANADA-Q	NATASHOUAN R. COAST	50.5N 61.5W 49.3N 59.2W	10 LO	250	N	H	890810	17:50:35	163	223	50	34			
97	44	CANADA-Q	COAST. GLOMANE R.	50.5N 60.8W 48.2N 58.3W	10 LO	250	N	H	890810	17:50:47	163	225	50	34			
97	45	CANADA-N	MISTAKEN PT. OROG.CLOS.	46.5N 53.5W 44.2N 53.5W	20 LO	250	N	H	890810	17:51:54	163	233	49	34			
97	46	CANADA-N	AVALON PEN. ATL.CST.	47.0N 53.0W 44.1N 53.1W	15 LO	250	N	H	890810	17:51:54	163	234	49	34			
97	47	ATLANTIC OCEAN	INTERNAL WAVES		45.7N 52.1W	20 LO	250	N	H	890810	17:52:06	163	235	48	34		
97	48	ATLANTIC OCEAN	OCEAN FRONT		45.6N 52.1W	40 LO	250	N	H	890810	17:52:03	163	235	48	34		
97	49	ATLANTIC OCEAN	OCEAN FRONT		45.6N 52.6W	40 LO	250	N	H	890810	17:52:12	163	236	48	34		
97	50	CANADA-N	BURSH PEN. SEA WND CLOS	47.0N 55.5W 45.3N 51.8W	70 LO	250	N	H	890810	17:52:16	163	236	43	34			
97	51	CAPE VERDE ISLANDS	SAL	17.0N 23.0W 16.0N 24.0W	20 LO	250	N	H	890810	18:01:01	165	279	28	34			
97	52	CAPE VERDE ISLANDS	BOA VISTA	16.0N 23.0W 16.0N 24.7W	30 LO	250	N	H	890810	18:01:04	165	279	28	34			
97	53	CAPE VERDE ISLANDS	MICO	15.0N 23.0W 16.5N 24.5W	15 LO	250	N	H	890810	18:01:40	165	279	28	34			
97	54	CAPE VERDE ISLANDS	SANTIAGO	15.0N 23.5W 16.4N 24.5W	30 LO	250	N	H	890810	18:01:50	165	279	28	34			
97	55	CAPE VERDE ISLANDS	FOGO. BRAVA	15.0N 24.5W 16.3N 24.6W	20 LO	250	N	H	890810	18:01:53	165	279	28	34			
97	56	CAPE VERDE ISLANDS	FOGO. BRAVA	15.0N 24.5W 15.9N 24.1W	2 LO	250	N	H	890810	18:02:00	165	279	28	34			
97	57	CAPE VERDE ISLANDS	FOGO. BRAVA	15.0N 24.5W 12.9N 22.3W	40 LO	250	N	H	890810	18:02:54	165	281	25	34			
97	58	USA-AK	MALASPINA/YAKUTSE GLS.CST	59.5N 141.0W 53.5N 141.1W	30 LO	250	N	H	890810	19:11:51	161	133	42	37			
97	59	USA-AK	KRUZOF I. PERL STR.	57.0N 136.0W 55.8N 139.4W	10 LO	250	N	Y	890810	19:12:07	161	133	43	37			
97	60	USA-AK	CHICHAGOF I. PERL STR.	57.5N 136.0W 55.9N 139.1W	5 LO	250	N	Y	890810	19:12:10	161	133	43	37			
97	61	USA-AK	CHICHAGOF I. YAKOBI I.	58.0N 136.0W 55.9N 138.9W	5 LO	250	N	Y	890810	19:12:12	161	134	43	37			
97	62	USA-AK	BRADY GLACIER. GL. BAY	58.5N 137.0W 56.0N 138.5W	5 LO	250	N	Y	890810	19:12:17	161	134	43	37			
97	63	USA-AK	GLACIER BAY. LYNN CANAL	59.0N 136.0W 56.1N 137.5W	0 LO	250	N	Y	890810	19:12:22	161	137	43	37			
97	64	USA-AK	GLACIER BAY. CHIKAT RA.	59.0N 136.0W 56.2N 136.0W	0 LO	250	N	Y	890810	19:12:31	161	139	43	37			
97	65	USA-AK	CHICHAGOF I. ICY STR.	58.0N 136.0W 56.3N 135.5W	0 LO	250	N	H	890810	19:12:35	161	139	44	37			
97	66	USA-AK	CHATHAM STR. SITKA	57.5N 135.0W 56.3N 136.0W	5 LO	250	N	H	890810	19:12:38	161	140	44	37			
97	67	USA-AK	KURU I. CHATHAM STR.	56.5N 134.0W 56.4N 135.1W	30 LO	250	N	H	890810	19:12:43	161	140	44	37			
97	68	USA-AK	PETERSBURG. BAIRD GL.	57.0N 133.0W 56.4N 134.7W	15 LO	250	N	H	890810	19:12:49	161	141	44	37			
97	69	USA-AK	CORONATION I. AFFLECK CA.	56.0N 134.0W 56.5N 133.8W	30 LO	250	N	Y	890810	19:12:54	161	142	44	37			
97	70	USA-AK	CORONATION I. SUMNER STR	56.2N 134.0W 56.6N 133.6W	40 LO	250	N	Y	890810	19:13:01	161	143	44	37			
97	71	USA-AK	PETERSBURG. MITKOF I.	56.5N 133.0W 56.7N 132.6W	70 LO	250	N	H	890810	19:13:08	161	144	45	37			
97	72	USA-AK	BAIRD GL. N.BAIRD GL.	57.0N 132.5W 56.7N 131.0W	20 LO	250	N	Y	890810	19:13:16	161	145	45	37			
97	73	USA-AK	BAIRD GLS. DAWES GL.	57.5N 133.0W 56.8N 131.4W	30 LO	250	N	Y	890810	19:13:18	161	146	45	37			
97	74	USA-AK	BAIRD GLS. DAWES GL.	57.5N 133.0W 56.8N 131.8W	20 LO	250	N	Y	890810	19:13:22	161	146	45	37			
97	75	USA-AK	BAIRD GLS. DAWES GL.	57.0N 132.5W 56.8N 130.7W	30 LO	250	N	Y	890810	19:13:24	161	147	45	37			
97	76	USA-AK	BAIRD GLS. DAWES GL.	57.0N 132.5W 56.8N 130.4W	30 LO	250	N	Y	890810	19:13:27	161	147	45	37			
97	77	USA-AK	BAIRD GLS. DAWES GL.	57.5N 132.5W 56.9N 130.0W	40 LO	250	N	Y	890810	19:13:30	161	148	45	37			
97	78	CANADA-A	PEACE R. AGR.	58.5N 116.0W 56.9N 114.0W	10 LO	250	N	Y	890810	19:15:47	162	171	48	37			
97	79	CANADA-A	PEACE R. AGR.	58.0N 116.0W 56.8N 112.9W	5 LO	250	N	Y	890810	19:15:57	162	172	49	37			
97	80	PACIFIC OCEAN	CLOUDS		57.1N 145.5W	45 LO	250	N	H	890810	20:45:06	161	158	47	38		
97	81	USA-AK	MALASPINA GL.YAKUTAT BAY	60.0N 140.0W 57.1N 143.3W	25 LO	250	N	Y	890810	20:45:25	161	161	47	38			
97	82	USA-AK	MALASPINA GL.GASSIZ GL.	60.0N 141.0W 57.1N 142.7W	20 LO	250	N	Y	890810	20:45:30	161	162	47	38			

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E - S	DATE	OMT	AZ	SUN EL OR
97	83	USA-AK	YAKUTAT BAY, RUSSELL FJO.	58.5N 139.5W	57.1N 161.7W	20 LO	250 N Y	890810	20:45:38	161 163	48 38
97	84	USA-AK	HARLEQUIN LST, ELIAS MTN	58.5N 139.9W	57.1N 161.8W	20 LO	250 N Y	890810	20:45:44	161 164	48 38
97	85	USA-AK	ALSEK R. ST. ELIAS MTNS.	58.8N 138.5W	57.8N 160.8W	20 LO	250 N Y	890810	20:45:53	161 164	49 38
97	86	USA-AK	BRADY GL. MT. CRILLON	58.5N 137.8W	57.8N 158.7W	8 LO	250 N N	890810	20:46:04	162 164	48 38
97	87	USA-AK	GLACIER BAY, MUIR GL.	58.8N 136.8W	56.8N 137.5W	0 LO	250 N N	890810	20:46:14	162 164	48 38
98	3 A	USSR-PACIFIC	KURILES-URUP LCID WAKES	44.8N 158.8E	43.8N 153.4E	85 LO	250 N N	890809	21:58:28	161 182	33 23
98	1	USSR-PACIFIC	KURILES-KETOY LCID WKES	47.5N 152.5E	46.8N 153.4E	85 LO	250 N Y	890809	21:59:54	161 185	34 23
98	2	USSR-PACIFIC	KURILES-KETOY LCID WKES	47.5N 152.5E	47.1N 153.4E	85 LO	250 N Y	890809	21:59:58	161 185	35 23
98	3	USSR-PACIFIC	KURILES-KETOY LCID WKES	47.5N 152.5E	48.8N 158.8E	85 LO	250 N Y	890809	22:00:43	161 189	36 23
98	4	USSR-PACIFIC	KURILES-KETOY LCID WKES	47.5N 152.5E	49.8N 159.4E	85 LO	250 N Y	890809	22:00:48	161 118	37 23
98	5	USSR-PACIFIC	KURILES-KETOY LCID WKES	47.5N 152.5E	49.5N 160.5E	85 LO	250 N N	890809	22:01:43	161 111	37 23
98	6	USSR-PACIFIC	ONEKOTAN I. CLD WAKES	49.8N 154.5E	50.1N 161.8E	90 LO	250 N N	890809	22:01:10	161 113	38 23
98	7	USSR-PACIFIC	SHUMSHU I. KOZEREVSKOYE	51.8N 156.8E	50.8N 163.6E	85 LO	250 N N	890809	22:01:30	161 115	38 23
98	8	BERING SEA	OCEAN EDDIES		57.1N 164.8W	68 LO	250 N N	890809	22:06:52	161 168	47 23
98	9	USA-AK	BRISTOL BAY, CLD BREAKS		57.1N 159.5W	100 LO	250 N N	890809	22:07:58	162 167	48 23
98	10	USA-AK	BRISTOL BAY, CLD BREAKS		57.1N 159.2W	100 LO	250 N N	890809	22:07:53	162 168	48 23
98	11	USA-AK	G. ALASKA, CLD BREAKS		56.7N 158.2W	95 LO	250 N N	890809	22:08:50	162 181	49 23
98	12	USA-AK	MALASPINA GLYAKUTAT BAY	48.8N 160.5W	53.8N 162.8W	48 LO	250 N Y	890809	22:09:55	162 182	50 23
98	13	USA-AK	MALASPINA GLYAKUTAT BAY	59.5N 160.8W	53.4N 160.3W	48 LO	250 N Y	890809	22:10:19	162 196	50 23
98	14	USA-OR	COLOMBIA R. CASCADES	45.5N 121.5W	52.2N 128.8W	68 NO	250 N N	890809	22:12:23	162 216	49 23
98	15	USA-WA	COLOMBIA R. MT. RAMBER	46.8N 121.5W	52.1N 127.5W	58 LO	250 N N	890809	22:12:28	162 217	49 23
98	16	USA-WA	COLOMBIA R. MT. ST. HELENS	46.8N 122.8W	51.5N 125.8W	58 LO	250 N N	890809	22:12:47	162 228	49 23
98	17	USA-WA	PUGET SOUND, WHIDBEY I.	48.8N 123.8W	50.3N 122.8W	65 LO	250 N N	890809	22:13:22	162 225	48 23
98	18	USA-WA	TACOMA, MT. RAMBER	47.8N 122.8W	49.7N 121.4W	38 LO	250 N N	890809	22:13:38	163 227	48 23
98	19	USA-WA	COLOMBIA R. SHAKA R.	46.8N 119.5W	48.8N 119.4W	18 LO	250 N N	890809	22:14:04	163 250	48 23
98	20	USA-WA	SHAKA R. PALOUSE R.	47.8N 117.5W	48.3N 118.5W	25 LO	250 N N	890809	22:14:16	163 232	47 23
98	21	USA-UT	GR. SALT L. ANTELOPE I.	41.5N 112.5W	47.8N 117.5W	75 LO	250 N N	890809	22:14:28	163 234	47 23
98	22	USA-ID	SHAKA RIVER VALLEY, AGR	44.5N 116.5W	47.4N 116.6W	38 LO	250 N N	890809	22:14:41	163 235	47 23
98	23	USA-MT	ENOS L. RUBY RANGE	45.5N 111.5W	46.2N 112.6W	48 LO	250 N N	890809	22:15:49	163 239	46 23
98	24	USA-WY	YELLOWSTONE LAKE	44.5N 112.5W	45.7N 112.7W	88 LO	250 N N	890809	22:15:22	163 288	46 23
98	25	USA-WY	SHOSHONE BASIN, OCEAN L.	43.8N 108.5W	45.2N 112.8W	58 LO	250 N N	890809	22:15:54	163 242	46 23
98	26	USA-UT	BEAR L. WASATCH RANGE	42.8N 111.5W	44.6N 111.8W	58 LO	250 N N	890809	22:15:49	163 243	45 23
98	27	USA-WY	GR. PLAINS STORM FRONT		42.8N 108.5W	75 LO	250 N N	890809	22:16:26	163 247	44 23
98	28	USA-WY	GR. PLAINS STORM FRONT		41.8N 108.5W	75 LO	250 N N	890809	22:17:10	163 252	43 23
98	29	USA-TX	DALLAS/FT. WORTH AREA	33.8N 97.8W	35.5N 100.7W	5 LO	250 N N	890809	22:18:03	164 261	38 23
98	30	USA-TX	CEGAR CR. RES. NEW AIRF.	32.8N 96.8W	34.9N 100.8W	0 LO	250 N N	890809	22:18:16	164 262	39 23
98	31	USA-TX	DALLAS/FT. WORTH AREA	33.8N 97.8W	33.8N 98.8W	0 NV	250 N Y	890809	22:18:42	164 264	38 23
98	32	USA-TX	FT. WORTH/ARLINGTON AREA	32.5N 97.5W	33.4N 98.6W	0 NV	250 N Y	890809	22:19:44	164 264	38 23
98	33	USA-TX	CEGAR CR. RES. NEW AIRF.	32.8N 96.8W	33.8N 98.2W	0 LO	250 N N	890809	22:18:53	164 265	37 23
98	34	USA-TX	BELTON, TEMPLE, LITTLE R.	31.8N 97.5W	31.8N 97.2W	5 NV	250 N N	890809	22:20:15	164 266	36 23
98	35	USA-TX	AUSTIN, BERGSTROM AFB	30.8N 97.5W	31.3N 96.8W	58 LO	250 N N	890809	22:20:28	164 267	36 23
98	36	USA-TX	HOUSTON, SHIP CHANNEL	30.8N 95.5W	30.8N 96.3W	0 LO	250 N Y	890809	22:20:35	164 268	36 23
98	37	USA-TX	HOUSTON, SHIP CHANNEL	29.5N 95.8W	30.5N 96.8W	0 LO	250 N Y	890809	22:20:42	164 268	35 23
98	38	USA-TX	GALVESTON & BAY, EFFLU.	29.5N 94.5W	30.2N 93.7W	8 LO	250 N N	890809	22:20:49	164 269	35 23
98	39	MEXICO	RIO GRANDE DELTA, COAST	25.5N 97.5W	29.3N 95.8W	68 LO	250 N N	890809	22:21:04	164 278	34 23
98	40	CHINA	DAMAQUIN SHAN	41.5N 115.5E	41.4N 114.7E	48 NV	250 N Y	890810	07:20:18	163 249	45 29
98	41	CHINA	DAMAQUIN SHAN	41.8N 115.5E	41.8N 115.3E	15 NV	250 N Y	890810	07:20:28	163 250	44 29
98	42	CHINA	DAMAQUIN SHAN, GUANTING RE	40.5N 115.5E	40.7N 115.7E	38 NV	250 N N	890810	07:20:35	163 250	44 29
98	43	CHINA	HENG SHAN, SANGGAN R.	39.5N 113.6E	40.2N 116.3E	48 LO	250 N N	890810	07:20:27	163 251	44 29
98	44	CHINA	YELLOW RIVER, HAZE	37.8N 118.0E	38.3N 118.5E	75 NV	250 N Y	890810	07:21:17	164 255	43 29
98	45	CHINA	YELLOW RIVER, HAZE	37.5N 118.5E	38.8N 118.8E	75 NV	250 N Y	890810	07:21:22	164 255	42 29
98	46	CHINA	YELLOW RIVER, HAZE	37.5N 118.5E	37.8N 119.8E	58 NV	250 N Y	890810	07:21:26	164 256	42 29
98	47	CHINA	LAIZHOU BAY CST, NEI R.	37.8N 119.5E	37.3N 119.4E	58 NV	250 N Y	890810	07:21:37	164 257	42 29
98	48	CHINA	LAIZHOU BAY CST, NEI R.	37.8N 119.5E	36.9N 120.8E	68 NV	250 N Y	890810	07:21:44	164 257	42 29
98	49	CHINA	E. CHINA SEA COAST	35.5N 120.8E	36.8N 121.8E	58 LO	250 N N	890810	07:22:04	164 259	41 29
98	50	CHINA	E. CHINA SEA, CST. CURR.	34.2N 120.5E	35.1N 121.9E	58 LO	250 N N	890810	07:22:22	164 260	40 29
98	51	CHINA	E. CHINA SEA, CST. CURR.	33.5N 121.8E	34.4N 122.4E	45 LO	250 N N	890810	07:22:32	164 261	40 29
98	52	CHINA	E. CHINA SEA, CST. CURR.	32.5N 121.8E	34.3N 122.7E	38 LO	250 N N	890810	07:22:39	164 262	40 29
98	53	CHINA	YANGTZE R. DELTA, EFFL.	31.5N 122.0E	33.2N 123.8E	28 LO	250 N N	890810	07:23:01	164 263	39 29
98	54	CHINA	YANGTZE R. DELTA, EFFL.	31.5N 121.5E	33.8N 123.9E	48 LO	250 N N	890810	07:23:04	164 264	39 29
98	55	CHINA	YANGTZE RIVER	32.8N 120.5E	32.8N 124.1E	58 LO	250 N N	890810	07:23:00	164 264	39 29
98	56	CHINA	HANGZHOU BAY, FUCHUN R.	30.8N 121.8E	31.2N 125.5E	48 LO	250 N N	890810	07:23:48	164 266	38 29
98	57	CHINA	ZHOUSHAN ISLANDS, CST	30.8N 122.8E	30.9N 125.8E	48 LO	250 N N	890810	07:23:45	164 266	37 29
98	58	CHINA	YUHUAN I. TAZHOU IS. CST	28.8N 128.5E	30.3N 126.3E	58 LO	250 N N	890810	07:23:56	164 267	37 29
98	59	JAPAN	THEYA I. IE I. IZENA I.	27.8N 128.0E	27.6N 128.5E	30 NV	250 N N	890810	07:24:48	164 270	35 29
98	60	JAPAN	ASHTO ISLAND	27.8N 128.5E	27.4N 128.7E	48 NV	250 N N	890810	07:24:53	164 271	35 29
98	61	JAPAN	OKINAWA ARCH. STREAMLINES	26.5N 127.5E	26.2N 129.4E	35 LO	250 N N	890810	07:25:16	164 272	34 29
98	62	JAPAN	OKINAWA ARCH. STREAMLINES	26.8N 127.0E	25.4N 130.2E	35 LO	250 N N	890810	07:25:31	165 273	33 29
98	63	SPAIN	RIA DE PONTE VERDE, CST	42.5N 9.8W	44.1N 10.3W	68 LO	250 N N	890810	08:32:29	161 97	30 30
98	64	SPAIN	CORD. CANTABRICA	42.5N 6.5W	44.8N 9.1W	48 LO	250 N N	890810	08:32:46	161 98	30 30

**TABLE 4-3. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
98	65	SPAIN	RIO Esla HEADWATER AREA	42.5N	6.0W	45.1N	8.7W	50	LO	250	H	N	890810	08:32:53	161	99	31	30
98	66	SPAIN	RIO Esla HEADWATER AREA	43.0N	5.5W	45.6N	7.8W	45	LO	250	H	N	890810	08:33:06	161	100	31	30
98	67	SPAIN	RIO Esla HEADWATER AREA	42.5N	5.5W	45.9N	7.3W	35	LO	250	H	N	890810	08:33:13	161	100	32	30
98	68	SPAIN	RIO Ebro HEADWATER AREA	43.0N	5.0W	46.9N	5.6W	70	LO	250	H	N	890810	08:33:37	161	103	33	30
98	69	FRANCE	ST. LO, NORMANDY	48.9N	1.8W	49.2N	1.1W	30	NV	250	N	H	890810	08:34:34	161	106	35	30
98	70	FRANCE	SEINE R. ROUEN	49.5N	1.0E	49.6N	0.3W	60	NV	250	N	Y	890810	08:34:46	161	109	36	30
98	71	FRANCE	SEINE R. ROUEN	49.5N	1.0E	49.9N	0.5E	60	NV	250	N	Y	890810	08:34:55	161	110	36	30
98	72	FRANCE	SOMME R. EST. ABBEVILLE	50.0N	1.5E	50.3N	1.5E	50	NV	250	N	H	890810	08:35:00	161	111	36	30
98	73	FRANCE	LILLE, CANALS, AGR.	50.5N	2.5E	50.7N	2.6E	40	NV	250	N	H	890810	08:35:20	161	113	37	30
98	74	BELGIUM	WESTERSCHDELDE, TERNEUZEN	51.0N	3.5E	51.3N	3.8E	50	NV	250	N	H	890810	08:35:35	161	114	37	30
98	75	NETHERLANDS	WAAL R. ESTUARY, AGR.	52.0N	4.0E	51.5N	4.5E	60	NV	250	N	N	890810	08:35:43	161	115	38	30
98	76	POLAND	HEL PEN. G. DANZIG	54.5N	18.5E	55.3N	18.4E	70	LO	250	H	N	890810	08:38:05	161	134	43	30
98	77	POLAND	HEL PEN. G. DANZIG	54.5N	19.0E	55.5N	19.4E	70	NV	250	N	N	890810	08:38:14	161	135	43	30
98	78	USSR-EUROPEAN	CAPE KOLKA, KOLKA, GRIGA	58.0N	22.5E	58.3N	25.3E	60	LO	250	N	H	890810	08:39:00	161	143	45	30
98	79	USSR-EUROPEAN	SAAREMAA I. G. RIGA	58.5N	22.5E	58.3N	26.6E	60	LO	250	H	N	890810	08:39:20	161	145	45	30
98	80	USSR-EUROPEAN	VOLGA R. GORKOSKOYE RES.	57.5N	43.0E	57.1N	42.8E	60	LO	250	H	Y	890810	08:41:20	162	168	48	30
98	81	USSR-EUROPEAN	VOLGA R. GORKOSKOYE RES.	57.5N	43.0E	57.0N	44.2E	60	LO	250	N	Y	890810	08:41:51	162	170	48	30
98	82	USSR-EUROPEAN	VOLGA R. CHEROKSAR RES.	56.5N	46.0E	56.9N	44.8E	70	NV	250	N	H	890810	08:42:13	162	174	49	30
98	83	USSR-EUROPEAN	CHERNUSHKA, AGR.	56.5N	56.5E	55.9N	55.6E	75	NV	250	N	H	890810	08:43:31	162	188	50	30
98	84	USSR-MIDDLE	L. KUSHMURUN, AGR. STEPPE	52.5N	65.0E	54.2N	64.4E	80	LO	250	N	N	890810	08:44:55	162	202	50	30
98	85	USSR-MIDDLE	L. TENGEZ, AGR. STEPPE	50.5N	60.0E	53.0N	67.5E	10	LO	250	H	N	890810	08:45:26	162	207	50	30
98	86	USSR-MIDDLE	L. TENGEZ, AGR. STEPPE	50.5N	60.5E	51.4N	73.5E	10	LO	250	H	N	890810	08:46:21	162	217	50	30
98	87	USSR-MIDDLE	L. BALKHASH, MID-SECT.	48.5N	76.0E	48.9N	79.5E	50	LO	250	N	H	890810	08:47:43	163	227	49	30
98	88	USSR-MIDDLE	L. SASTIKOL, STEPPE	45.5N	81.0E	47.7N	81.8E	35	LO	250	N	N	890810	08:48:13	163	231	48	30
98	89	USSR-MIDDLE	L. ALAKOL, STEPPE	46.0N	81.5E	47.6N	82.0E	50	LO	250	H	Y	890810	08:48:16	163	231	48	30
98	90	USSR-MIDDLE	L. ALAKOL, ALLUVIAL FAN	46.0N	82.0E	47.5N	82.3E	40	LO	250	N	Y	890810	08:48:20	163	232	48	30
98	91	CHINA	DAXUE SHAN, ESCARPMENT	36.0N	101.5E	39.0N	103.6E	60	LO	250	H	N	890810	08:54:35	164	267	37	30
98	92	CHINA	YANGTZE R. DALIANG SHAN	27.5N	103.0E	28.5N	104.8E	40	LO	250	H	N	890810	08:55:03	164	269	34	30
98	93	CHINA	YANGTZE R. LUNAN SHAN	26.5N	103.0E	27.8N	105.3E	50	LO	250	N	N	890810	08:55:15	164	270	35	30
98	94	CHINA	LUCHONG R. ZHUN	27.6N	105.5E	27.6N	105.7E	20	NV	250	N	N	890810	08:55:25	164	270	35	30
98	95	VIETNAM	SONG HONG R. DELTA	20.5N	106.5E	21.0N	109.1E	40	LO	250	N	H	890810	08:57:00	165	276	31	30
98	96	VIETNAM	G. TONGKIL, CST. ISLANDS	21.5N	106.0E	21.5N	110.6E	20	LO	250	N	N	890810	08:57:14	165	276	30	30
98	97	CHINA	G. TONGKIL, CST. ISLANDS	21.5N	106.5E	21.2N	110.2E	20	LO	250	N	N	890810	08:57:20	165	276	30	30
98	98	CHINA	G. TONGKIL, CST. BEMAI	21.5N	109.0E	21.0N	110.4E	10	LO	250	H	N	890810	08:57:24	165	276	30	30
98	99	CHINA	TIESHAN/ANPU BAYS	21.5N	109.5E	20.7N	110.6E	10	LO	250	N	N	890810	08:57:29	165	277	30	30
98	100	BRITAIN	IRISH SEA, MORECAMBE BAY	53.5N	3.0W	53.5N	3.2W	75	LO	250	H	N	890810	10:04:10	161	135	41	31
98	101	BRITAIN	LAKE CTRY. MORECAMBE BAY	54.0N	3.0W	53.9N	3.1W	60	LO	250	N	H	890810	10:09:07	161	138	41	31
98	6 A	CANADA-NT	LOW PRESS. CTR. JET STR.			55.7N	96.3W	85	HO	50	N	H	890809	16:02:41	162	182	45	19
98	1	CANADA-NT	LOW PRESS. CTR. JET STR.			56.1N	84.7W	90	HO	50	N	H	890809	16:03:00	162	185	46	19
98	2	CANADA-NT	CYCLONE			56.1N	83.6W	100	HO	50	N	H	890809	16:03:05	162	186	46	19
98	3	PORTUGAL	ATLANTIC CST. LISBON	38.5N	9.5W	41.2N	15.1W	75	HO	50	N	N	890809	16:15:00	167	252	42	19
98	4	PORTUGAL	ATLANTIC CST. LISBON	38.0N	9.5W	40.5N	14.3W	75	HO	50	N	N	890809	16:15:15	167	254	42	19
98	5	PORTUGAL	ATLANTIC CST. CAPE ST. VIN	38.0N	9.0W	39.7N	13.4W	75	HO	50	N	H	890809	16:15:31	167	255	41	19
98	6	PORTUGAL	ATLANTIC CST. CAPE ST. VIN	38.0N	8.0W	39.3N	12.9W	80	HO	50	N	H	890809	16:15:40	167	254	41	19
98	7		SHUTTLE LIGHT-GREEN			50.6S	115.8W			50	N	H	890810	09:32:00	163	140	40	30
98	8	USSR-EUROPEAN	VOLGA R. URAL R. STEPPE	50.5N	48.0E	53.5N	44.1E	80	HO	50	N	H	890810	10:15:07	162	206	50	31
98	9	USSR-EUROPEAN	VOLGA R. URAL R. STEPPE	51.0N	48.0E	53.0N	45.6E	80	HO	50	N	H	890810	10:16:33	162	208	50	31
98	10	CHINA	TIBETAN PLAT. LANGA L.	31.5N	80.5E	32.0N	78.1E	90	HO	50	N	H	890810	10:24:05	164	263	39	31
98	11	CHINA	TIBETAN PLAT. LANGA L.	31.0N	81.0E	32.1N	78.7E	90	HO	50	N	H	890810	10:24:18	164	264	39	31
98	12	CHINA	TIBETAN PLAT. LANGA L.	30.5N	81.5E	31.7N	78.1E	90	HO	50	N	H	890810	10:24:27	164	265	39	31
98	13	CHINA	TIBETAN PLAT. LANGA L.	30.5N	82.0E	31.2N	79.6E	90	HO	50	N	N	890810	10:24:37	164	266	39	31
98	14	CHINA	TIBETAN PLAT. MAPAM L.	30.5N	83.0E	30.6N	80.1E	90	HO	50	N	H	890810	10:24:40	164	266	39	31
98	15	CHINA	TIBETAN PLAT. MAPAM L.	31.0N	81.5E	28.7N	81.7E	90	HO	50	N	H	890810	10:25:25	164	269	34	31
98	16	CHINA	TIBETAN PLAT. MAPAM L.	30.5N	81.5E	28.2N	82.1E	90	HO	50	N	H	890810	10:25:35	164	269	34	31
98	17	CHINA	TIBETAN PLAT. MAPAM L.	30.6N	81.5E	27.7N	82.4E	90	HO	50	N	H	890810	10:25:43	164	270	34	31
98	18	CHINA	TIBETAN PLAT. MAPAM L.	29.5N	81.0E	27.2N	82.9E	90	HO	50	N	H	890810	10:25:54	164	270	35	31
98	19	FED REP. OF GERMANY	EMS/WESER/ELBE ESTUARIES	53.0N	8.0E	54.2N	7.5E	75	HO	50	N	H	890810	11:44:09	162	183	49	32
98	20	FED REP. OF GERMANY	EMS/WESER/ELBE ESTUARIES	53.0N	9.5E	55.9N	9.6E	80	HO	50	N	H	890810	11:44:20	162	187	50	32
98	21	POLAND	G. DANZIG, HEL PEN.	53.0N	20.0E	55.1N	14.3E	85	HO	50	N	Y	890810	11:45:11	162	194	50	32
98	22	POLAND	G. DANZIG, HEL PEN.	53.5N	20.5E	54.9N	15.3E	85	HO	50	N	Y	890810	11:45:21	162	196	50	32
98	23	POLAND	LOOKING SOUTHWEST, FRONTS			52.0N	23.3E	95	HO	50	N	N	890810	11:46:44	162	200	50	32
98	24	POLAND	LOOKING SOUTH, FRONTS			52.5N	24.4E	95	HO	50	N	N	890810	11:46:53	162	210	50	32
98	25	OMAN	ARABIAN SEA CST. FRONTS	17.5N	57.5E	22.6N	63.3E	60	HO	50	N	N	890810	11:57:52	165	275	32	32
98	26	USA-TX	MID LAT TROF W/BCLNC ZNE	30.5N	94.0W	28.5N	96.0W	70	HO	50	N	H	890810	12:58:38	161	89	14	33
98	27	USA-TX	MID LAT TROF W/BCLNC ZNE	31.0N	94.0W	29.1N	95.5W	70	HO	50	N	H	890810	12:58:48	161	89	14	33
98	28	USA-CO	FRONT RA. DENVER, PANOR.	39.5N	106.0W	38.9N	108.8W	40	HO	50								



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
99	33	MADEIRA ISLANDS	AFRICAN SANDSTORM FRONT	33.5N 16.5W	33.0N 16.9W	50 HO	50 N N 890610	16:25:00	164 257 43 35
99	34	MADEIRA ISLANDS	AFRICAN SANDSTORM FRONT	32.5N 15.5W	35.1N 16.0W	50 HO	50 N N 890610	16:25:25	164 259 42 35
99	35	CANADA-M	HUDSON BAY, NELSON R.	57.0N 96.0W	57.1N 99.9W	60 HO	50 N N 890610	17:44:01	161 156 47 36
99	36	CANADA-M	HUDSON BAY, NELSON R.	57.0N 94.0W	57.1N 98.2W	60 HO	50 N N 890610	17:44:15	161 161 47 36
99	37	CANADA-M	HUDSON BAY, NELSON R.	57.0N 92.0W	57.1N 95.9W	60 LO	50 N N 890610	17:44:35	161 164 48 36
99	38	CANADA-Q	GST.LAWRENCE ANTICOSTI	51.0N 63.0W	53.2N 64.0W	60 HO	50 N N 890610	17:48:37	162 205 50 36
99	39	CANADA-Q	GST.LAWRENCE ANTICOSTI	50.5N 64.0W	52.4N 67.2W	50 HO	50 N N 890610	17:48:33	162 209 50 36
99	40	CANADA-Q	GST.LAWRENCE ANTICOSTI	49.5N 62.0W	51.5N 64.7W	50 HO	50 N N 890610	17:49:30	162 213 50 36
99	41	CAPE VERDE ISLANDS	PANORAMA.CLOUD COVERED	18.0N 24.0W	19.8N 26.7W	50 HO	50 N N 890610	18:00:45	165 277 31 36
99	42	CAPE VERDE ISLANDS	PANORAMA.CLOUD COVERED	17.0N 23.5W	18.4N 25.8W	50 HO	50 N N 890610	18:01:15	165 278 30 36
99	43	USA-MA	CAPE COD, BOSTON HARBOR	42.0N 71.0W	44.5N 73.6W	50 HO	50 N N 890610	19:23:06	163 238 48 37
99	44	USA-MA	CAPE COD, BOSTON HARBOR	42.0N 70.0W	43.9N 72.6W	50 HO	50 N N 890610	19:23:21	163 240 48 37
99	45	USA-MA	CAPE COD, NANTUCKET I.	41.5N 70.0W	43.3N 71.7W	50 HO	50 N N 890610	19:23:34	163 241 47 37
99	46	BRAZIL	ATLANTIC EAST COAST	6.0S 35.0W	2.9S 34.1W	70 HO	50 N N 890610	19:38:16	166 206 12 37
99	47	BRAZIL	ATLANTIC EAST COAST	7.0S 35.0W	3.3S 35.0W	70 HO	50 N N 890610	19:38:18	166 206 11 37
99	48	BRAZIL	ATLANTIC EAST COAST	7.5S 35.0W	4.0S 35.5W	70 HO	50 N N 890610	19:38:30	166 206 11 37
99	49	BRAZIL	ATLANTIC EAST COAST	8.0S 35.0W	4.7S 35.9W	70 HO	50 N N 890610	19:38:43	166 207 10 37
99	50	CANADA-S	L. DIEFENBAKER, HI PLAINS	51.0N 107.5W	51.9N 111.7W	50 HO	50 N N 890610	20:50:22	162 211 50 38
99	51	CANADA-S	L. DIEFENBAKER, HI PLAINS	51.0N 107.0W	51.5N 118.5W	50 HO	50 N N 890610	20:50:35	162 212 50 38
99	52	CANADA-S	L. DIEFENBAKER, HI PLAINS	51.0N 105.0W	50.8N 108.9W	50 HO	50 N N 890610	20:50:54	162 215 50 38
99	53	CANADA-S	LAST MTH. L. HI PLAINS	52.5N 104.0W	50.2N 107.4W	50 HO	50 N N 890610	20:51:12	162 218 50 38
99	54	USA-GA	BOINC ZONE		32.4N 82.4W	90 HO	50 N N 890610	20:57:55	164 262 41 38
99	55	USA-GA	BOINC ZONE		31.8N 81.3W	95 HO	50 N N 890610	20:58:06	164 263 41 38
99	56	USA-GA	BOINC ZONE		31.2N 81.4W	95 HO	50 N N 890610	20:58:17	164 264 40 38
99	57	BAHAMAS	SOUTH AREA, CACOS IS.	23.0N 74.5W	25.0N 76.3W	50 HO	50 N N 890610	21:00:17	165 272 36 38
99	58	BRAZIL	RIO BRANCO, TROP.STORMS	3.0N 61.0W	0.3N 64.5W	80 HO	50 N N 890610	21:07:45	166 206 15 38
99	59	BRAZIL	RIO BRANCO, TROP.STORMS	1.0N 61.0W	0.3S 64.6W	80 HO	50 N N 890610	21:07:56	166 206 14 38
99	60	BRAZIL	RIO BRANCO, TROP.STORMS	1.0N 61.0W	1.1S 64.1W	85 HO	50 N N 890610	21:08:11	166 206 14 38
99	61		SHUTTLE CASH-BLURRED				50 U N		
99	62	PORTUGAL	SOUTH COAST, G. CADIZ	36.0N 8.0W		90 HO	50 N N		
99	63	PORTUGAL	SOUTH COAST, G. CADIZ	36.5N 8.0W		50 HO	50 N N		
99	64	PORTUGAL	SOUTH COAST, G. CADIZ	37.0N 8.0W		40 HO	50 N N		
99	65	TAIWAN	ENTIRE ISLAND, FORMOSA ST	26.5N 120.0E	28.0N 118.6E	30 HO	50 N N 890611	07:32:39	164 265 41 45
99	66	TAIWAN	ENTIRE ISLAND, FORMOSA ST	25.5N 122.5E	26.2N 120.3E	30 HO	50 N N 890611	07:32:56	164 267 40 45
99	67	USSR-EUROPEAN	KAMA R. VOTKINSKOYE RES.	56.5N 53.0E	54.1N 57.1E	60 HO	50 N N 890611	08:53:16	162 194 51 46
99	68	USSR-EUROPEAN	KAMA R. VOTKINSKOYE RES.	56.0N 53.0E	53.7N 56.7E	70 HO	50 N N 890611	08:53:33	162 197 51 46
99	69		BLANK		18.0S 126.1E		890611	09:17:26	156 206 1 46
99	70	USSR-EUROPEAN	URAL R. ESTUARY, CASP SEA	47.5N 50.5E	48.3N 47.9E	15 HO	50 N N 890611	10:26:23	163 217 51 47
99	71	USSR-EUROPEAN	URAL R. ESTUARY, CASP SEA	47.0N 52.0E	48.7N 48.2E	15 HO	50 N N 890611	10:26:37	163 220 51 47
99	72	CANADA-PEI	NOVA SCOTIA, NORTHWILSTR.	44.5N 62.5W	44.2N 63.7W	20 HO	50 U N 890611	11:41:53	161 93 25 48
99	73	CANADA-PEI	MAGDALEN IS. NO. CST.	47.5N 61.5W	45.5N 61.7W	20 HO	50 U N 890611	11:42:22	161 95 27 48
99	74	USSR-EUROPEAN	BLACK SEADENFR REST.	48.0N 30.0E	49.1N 25.2E	30 HO	50 N N 890611	11:56:56	163 217 51 48
99	75	USSR-EUROPEAN	BLACK SEA, CRIMEA	45.5N 32.5E	46.0N 29.2E	40 HO	50 N N 890611	11:57:56	163 226 51 48
99	76	IRAN	ZAGROS MTHS, DES. BASINS	33.0N 52.0E	32.0N 48.1E	20 HO	50 N N 890611	12:03:15	164 200 44 48
99	77	IRAN	PERSIAN G. QATAR	28.5N 52.0E	30.5N 48.6E	15 HO	50 N N 890611	12:03:44	164 203 43 48
99	78	OMAN	AKHDAR MTHS, RUB AL KHALI	22.5N 57.5E	23.9N 54.6E	30 HO	50 N N 890611	12:05:45	165 271 38 48
99	79	USA-MI	LHIIRON. STR. MACONAC	43.0N 82.5W	44.8N 85.7W	40 HO	50 U N 890611	13:12:38	161 94 26 49
99	80	CANADA-O	LHIIRON. GEORGIAN BAY	45.0N 81.0W	45.8N 84.1W	50 HO	50 N N 890611	13:13:03	161 95 27 49
99	81	USA-CA	MOJAVE DES, IMPERIAL VAL.	35.0N 118.0W	37.6N 118.7W	40 HO	50 N N 890611	13:40:31	161 84 17 50
99	82	CANADA-O	HUDSON BAY, SW SHORE AREA	55.0N 90.0W	54.5N 73.1W	80 HO	50 N N 890611	14:49:42	161 136 42 50
99	83	USA-WA	CASCADES, PUGET SOUND	48.5N 122.0W	50.9N 119.0W	50 HO	50 N N 890611	16:16:17	161 107 32 51
99	84	CANADA-BC	ROCKY MTHS, CASCADES	50.0N 121.0W	51.5N 118.5W	50 HO	50 N N 890611	16:16:35	161 100 33 51
99	85	CANADA-BC	ROCKY MTHS, COLUMBIA BAS.	50.0N 120.0W	51.9N 116.9W	40 HO	50 N N 890611	16:16:50	161 110 34 51
99	86	CANADA-O	HUDSON BAY, SW SHORE AREA	55.0N 82.5W	57.1N 79.6W	50 HO	50 N N 890611	16:22:35	161 158 47 51
99	87	CANARY ISLANDS	CLOUD COVERED, AFR. CST.	28.5N 17.5W	31.5N 20.6W	70 HO	50 N N 890611	16:34:53	164 260 44 51
99	88	WESTERN SAHARA	RIO DE ORO PEN, ATL. CST.	24.0N 16.0W	22.6N 13.4W	50 HO	50 N N 890611	16:37:48	165 272 38 51
99	89	IVORY COAST	ABIDJAN/TREICHVILLE, CST.	5.0N 4.0W	7.2N 3.7W	50 HO	50 N N 890611	16:42:28	165 283 25 51
99	90	CANADA-O	HUDSON BAY, SW COAST AREA	55.0N 84.0W	55.6N 82.2W	50 HO	50 N N 890611	17:55:13	162 179 50 52
99	91	BRAZIL	AMAZON R. DELTA, CST.	2.0N 49.0W	6.2N 49.0W	40 HO	50 N N 890611	19:43:49	165 284 25 52
99	92	USA-FL	FL PEN. KEYS, G. MEXICO	26.0N 82.5W	23.4N 82.9W	50 HO	50 N N 890611	21:09:06	165 271 39 54
100	1	SWITZERLAND	AARE R. BERG, THUNDERSEE	46.5N 8.0E	49.0N 6.1E	10 LO	250 H N 890612	07:20:32	160 99 28 61
100	2	SWITZERLAND	L. NEUCHÂTEL, BERG, JURA MT	47.0N 7.0E	49.3N 6.6E	20 LO	250 H N 890612	07:20:38	160 100 28 61
100	3	SWITZERLAND	AARE R. BERG, THUNDERSEE	47.0N 7.5E	49.4N 6.9E	40 LO	250 H N 890612	07:20:42	160 100 28 61
100	4	USSR-EUROPEAN	ZAPADNAYA RT. PEAT MINE	55.5N 29.0E	55.7N 28.4E	0 HV	250 H N 890612	07:24:20	161 125 38 61
100	5	USSR-MIDDLE	PYSHNA R. INDUSTRY, LAKES	57.0N 62.0E	54.3N 60.7E	10 LO	250 H N 890612	07:29:09	161 168 48 61
100	6	USSR-MIDDLE	PETROPAVLOVSK, SHIM R.	55.0N 60.0E	54.8N 60.1E	20 NV	250 H N 890612	07:30:27	162 181 50 61
100	7	USSR-MIDDLE	SWAMP	52.0N 48.5E	51.7N 48.2E	60 NV	250 H N 890612	07:32:21	162 199 52 61
100	8	USSR-MIDDLE	L. ZAYSAN, IRTISH R.	48.0N 84.0E	50.7N 82.8E	40 LO	250 H N 890612	07:32:51	162 204 52 61
100	9	CHINA	IRTYSH R. AYGIRKUM DES.	48.0N 86.0E	50.6N 83.1E	50 LO	250 H N 890612	07:32:55	162 204 52 61
100	10	CHINA	HAR L. SHULE NAN MTHS.	38.5N 97.5E	42.1N 98.4E	30 LO	250 H N 890612	07:34:24	163 234 52 61

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
100	11	CHINA	AFLO,SHUANGCHENGZIO R.	48.5N 100.0E	41.0N 99.8E	5 LO	250 N H	890812	07:34:50	163 237 52 61
100	12	CHINA	AFLO,SHUANGCHENGZIO R.	48.5N 100.0E	48.3N 100.7E	5 HV	250 N H	890812	07:37:06	163 239 51 61
100	13	CHINA	HAN R. QIN MTHS.	33.0N 107.0E	32.7N 106.7E	70 LO	250 N H	890812	07:39:41	164 254 48 61
100	14	CHINA	YANGTZE R.YUEYANGDT L.	29.5N 113.0E	30.4N 110.8E	25 LO	250 N H	890812	07:40:27	164 260 46 61
100	15	CHINA	YANGTZE R.YUEYANGDT L.	29.5N 113.0E	29.2N 111.8E	25 LO	250 N H	890812	07:40:49	164 262 46 61
100	16	CHINA	ZI R.YIYANG,YUAN R.DT L.	29.0N 112.0E	27.7N 113.0E	20 LO	250 N H	890812	07:41:18	164 264 43 61
100	17	CHINA	CST,SHANTOU,CHAOYANG	23.5N 117.0E	24.3N 115.6E	40 LO	250 N H	890812	07:42:23	165 269 42 61
100	18	CHINA	CST,DONGSHANNEI BAY	21.0N 118.0E	23.0N 116.0E	15 LO	250 N H	890812	07:42:32	165 269 42 61
100	19	CHINA	CST,SHANTOU,CHAOYANG	23.5N 117.0E	22.8N 116.7E	40 LO	250 N H	890812	07:42:51	165 270 41 61
100	20	CHINA	PRATUS ISLAND	20.5N 117.0E	21.0N 117.0E	50 HV	250 H N	890812	07:43:23	165 272 40 61
100	21	PHILIPPINES	THRE R. EFFL. ABRA R.	17.5N 120.5E	15.7N 121.5E	20 LO	250 H H	890812	07:45:02	165 277 36 61
100	22	AUSTRALIA-NT	ARNHEM LAND, FIRES	12.6S 134.0E	8.3S 135.4E	0 LO	250 N H	890812	07:52:12	166 280 15 61
100	23	AUSTRALIA-NT	BLUE MUD BAY, FIRES	13.0S 136.0E	9.7S 136.3E	10 LO	250 N H	890812	07:52:37	166 280 13 61
100	24	AUSTRALIA-NT	GREGORY R. YAPPAR R.	18.5S 142.5E	16.6S 140.5E	0 LO	250 U H	890812	07:54:43	166 283 7 61
100	25	AUSTRALIA-NT	GEORGINA R. FOLDED MTHS.	23.0S 139.5E	17.1S 140.8E	0 LO	250 U H	890812	07:54:51	166 284 6 61
100	26	BRITAIN	ISLE OF MAN, IRISH SEA	54.0N 4.5W	53.7N 4.2W	25 LO	250 N H	890812	08:53:26	161 113 34 62
100	27	USSR-EUROPEAN	KURYYSHEV,RESULYANOVSK	54.5N 49.2E	53.6N 51.6E	40 LO	250 H H	890812	09:01:50	162 189 51 62
100	28	USSR-EUROPEAN	ORENBURG,URAL R.SAKMAR R	52.0N 53.0E	52.3N 55.7E	40 HV	250 N H	890812	09:02:35	162 196 52 62
100	29	USSR-EUROPEAN	NOVOTROITSK,ORSK,URAL R	51.0N 58.5E	51.3N 58.4E	10 HV	250 N H	890812	09:03:06	162 201 52 62
100	30	USSR-EUROPEAN	DOMBAROVSKIY,RES,RODUST.	51.0N 60.0E	50.5N 60.3E	15 HV	250 H H	890812	09:03:28	162 204 53 62
100	31	USSR-MIDDLE	DZHEKAZGAN, SARYSU R.	43.0N 68.0E	44.0N 68.1E	5 LO	250 N H	890812	09:05:07	163 210 53 62
100	32	USSR-MIDDLE	L.BALKHASH,SARYSHAGAN	44.0N 71.5E	43.7N 73.1E	15 LO	250 N H	890812	09:06:29	163 220 52 62
100	33	USSR-MIDDLE	L.BALKHASH, SOUTH END	43.0N 74.0E	42.7N 74.5E	15 LO	250 N H	890812	09:06:43	163 232 52 62
100	34	INDONESIA	JAVA,SUNBING VOLCANO	7.5S 110.0E	4.9S 110.5E	60 LO	250 H H	890812	09:21:42	166 287 18 62
100	35	INDONESIA	JAVA, MUNO VOLCANO	6.5S 111.0E	5.9S 111.1E	10 HV	250 N H	890812	09:22:01	166 288 17 62
100	36	INDONESIA	JAVA,PEMANDJAKAN VOLCANO	8.0S 112.0E	7.5S 112.0E	70 LO	250 H H	890812	09:22:28	166 288 16 62
100	37	INDONESIA	JAVA, RAUNG VOLCANO	8.0S 114.0E	8.2S 113.4E	60 LO	250 N H	890812	09:23:11	166 288 14 62
100	38	INDONESIA	BALL VOLCANIC RIDGE	8.5S 115.5E	10.2S 113.7E	40 LO	250 N H	890812	09:23:21	166 288 13 62
100	39	ROMANIA	BLK SEA CST.CONSTANTA	44.0N 28.5E	44.0N 26.1E	20 LO	250 N Y	890812	12:07:06	163 220 53 64
100	40	ROMANIA	BLK SEA CST.LUMBNAC,CKLS	44.5N 28.5E	44.1N 26.5E	30 LO	250 N Y	890812	12:07:12	163 227 53 64
100	41	ROMANIA	BLK SEA CST.CONSTANTA	44.0N 28.5E	43.0N 26.0E	20 LO	250 H Y	890812	12:07:18	163 228 53 64
100	42	ATMOSPHERIC LABS	MOOH, SYRIA/IRAQ, DESERT	35.0N 37.0E	34.2N 34.4E	5 HO	250 N H	890812	12:08:31	163 237 52 64
100	43	SYRIA	ASI R. HANAH, HIMS, AFLO	35.0N 37.0E	36.2N 36.4E	5 LO	250 N H	890812	12:10:04	164 240 50 64
100	44	SYRIA	QUTWAYO R. KALAB, AGR.	36.0N 37.0E	35.5N 37.1E	0 LO	250 H H	890812	12:10:18	164 240 50 64
100	45	SAUDI ARABIA	AR RIYAD, DESERT	24.5N 46.5E	25.0N 45.5E	20 LO	250 H H	890812	12:23:26	164 266 44 64
100	46	USA-CO	MONTEZUMA RES, AGR.	40.5N 103.5W	38.4N 102.1W	40 LO	250 N H	890812	13:18:27	160 82 14 65
100	47	USA-MI	STR. MACKINAC, LHIIRON	43.5N 84.5W	46.1N 81.4W	20 LO	250 N H	890812	13:21:10	160 82 23 65
100	48	CANADA-O	LAKE COUNTRY	49.7N 92.7W	42.0W	10 LO	250 H H	890812	13:23:20	160 102 29 65
100	49	USA-CA	BLURRED	43.0N 5.2E		0 LO	250 N H	890812	13:38:03	163 230 53 65
100	50	USA-CA	YUBA CITY,FEATHER R. AGR	39.0N 121.5W	40.5N 122.5W	0 LO	250 N Y	890812	14:49:43	160 84 16 66
100	51	USA-CA	YUBA CITY,FEATHER R. AGR	39.0N 121.5W	40.0N 122.1W	0 LO	250 N Y	890812	14:49:49	160 84 16 66
100	52	USA-CA	SACRAMENTO R./VALLEY,AGR	38.0N 121.5W	41.1N 121.7W	25 LO	250 N Y	890812	14:49:57	160 85 17 66
100	53	USA-CA	SACRAMENTO R./VALLEY,AGR	38.5N 121.5W	41.3N 121.5W	15 LO	250 N Y	890812	14:50:00	160 85 17 66
100	54	USA-MT	CANYON FERRY LING BELT	47.0N 111.0W	45.3N 115.7W	35 LO	250 N H	890812	14:51:31	160 90 22 66
100	55	USA-MT	CANYON FERRY LING BELT	47.0N 111.0W	45.4N 115.5W	20 LO	250 N H	890812	14:51:35	160 91 22 66
100	56	USA-MT	LITTLE BELT MTHS, AGR.	47.0N 110.0W	45.5N 115.4W	40 LO	250 N H	890812	14:51:35	160 91 22 66
100	57	USA-MT	MO. R. HIGHWOOD MTHS,AGR	47.5N 110.5W	45.6N 115.3W	30 LO	250 N H	890812	14:51:37	160 91 22 66
100	58	USA-MT	GREAT FALLS	47.5N 111.5W	45.6N 115.1W	30 LO	250 N H	890812	14:51:39	160 91 22 66
100	59	USA-MT	LEWIS RA. SUN R. AGR.	47.5N 112.0W	45.0N 114.0W	35 LO	250 N H	890812	14:51:42	160 91 22 66
100	60	USA-MT	GREAT FALLS,MO. RSUN R.	47.5N 112.0W	45.0N 114.3W	40 LO	250 N H	890812	14:51:51	160 92 23 66
100	61	USA-MT	SUN R. TETON R. AGR.	47.5N 112.0W	44.4N 113.0W	40 LO	250 N H	890812	14:51:57	160 92 23 66
100	62	USA-MT	LEWIS RANGE, TETON R,AGR	47.5N 112.5W	46.7N 113.4W	40 LO	250 N H	890812	14:52:04	160 93 23 66
100	63	CANADA-A	EDMONTON,N.SASK,R,BATT.R	53.5N 113.5W	55.4N 113.7W	20 LO	250 U H	890812	16:26:54	161 118 36 67
100	64	CANADA-A	EDMONTON,N.SASK,R,BATT.R	53.5N 113.5W	55.1N 112.7W	20 LO	250 U H	890812	16:26:59	161 119 36 67
100	65	CANADA-A	EDMONTON,N.SASK,R,BATT.R	53.5N 113.5W	55.2N 112.5W	25 LO	250 U H	890812	16:27:03	161 119 36 67
100	66	CANADA-S	PETER POND L.CHURCHILL L	56.0N 100.0W	55.0N 100.1W	0 HV	250 U H	890812	16:27:44	161 124 38 67
100	67	CANADA-S	PETER POND L.CHURCHILL L	56.0N 102.5W	56.0N 107.4W	0 LO	250 U H	890812	16:27:48	161 125 38 67
100	68	CANADA-S	BLACK BIRCH L. ITINGO L	57.0N 107.0W	56.4N 104.7W	25 LO	250 N H	890812	16:28:14	161 129 39 67
100	69	CANADA-S	BLACK BIRCH L. ITINGO L	57.0N 107.0W	56.4N 104.6W	20 LO	250 N H	890812	16:28:17	161 129 39 67
100	70	USA-AK	ALASKA PENALEUTIAN R./	54.5N 155.0W	56.1N 153.1W	80 LO	250 N H	890812	19:21:52	161 125 38 69
100	71	USA-WI	GREEN BAY, WENOMNEE/R	43.0N 87.5W	45.5N 90.5W	45 LO	250 H N	890812	19:38:12	163 220 54 69
100	72	USA-WI	GREEN BAY, ESCANABA	46.0N 87.0W	45.3N 90.2W	30 LO	250 N H	890812	19:39:16	163 221 54 69
100	73	USA-MI	L.SUPERIOR,MARQUETTE	46.5N 87.5W	45.1N 89.8W	60 LO	250 N H	890812	19:39:22	163 221 54 69
100	74	USA-MI	L.MI. TRAVERSE CITY	44.5N 86.0W	44.0N 88.1W	40 LO	250 N Y	890812	19:39:47	163 225 54 69
100	75	USA-MI	L.MI. TRAVERSE CITY	45.0N 86.0W	43.9N 88.0W	40 LO	250 N Y	890812	19:39:49	163 225 54 69
100	76	USA-MI	L.MI. TRAVERSE CITY	45.0N 85.5W	43.8N 87.0W	30 LO	250 N Y	890812	19:39:52	163 226 54 69
100	77	USA-MI	L.MI. TRAVERSE CITY	45.0N 85.0W	43.7N 87.7W	40 LO	250 N Y	890812	19:39:54	163 226 54 69
100	78	USA-MI	L.MI. TRAVERSE CITY	45.0N 85.3W	43.5N 87.4W	40 LO	250 N Y	890812	19:39:59	163 227 54 69
100	79	USA-MI	CENT.AREA, MUSKEGON R.	43.5N 85.0W	42.0N 86.4W	50 LO	250 N Y	890812	19:40:11	163 228 54 69
100	80	USA-MI	CENT.AREA, TITTABAWASEE R	44.0N 85.0W	42.7N 86.2W	50 LO	250 N Y	890812	19:40:17	163 229 54 69



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	AL	AZ	EL	OR
100	81	USA-MI	SAG. BAY, TITTABAWASSEE R	42.0N 84.5W 42.6N 84.1W	50 LO	250 N Y	890812	19:40:10	163	229	54	69	
100	82	USA-IL	CHICAGO, WAUKEGAN, KENOSHA	42.0N 88.8W 42.4N 85.9W	40 LO	250 N Y	890812	19:40:23	163	230	53	69	
100	83	USA-IL	CHICAGO LAKE FRONT	42.0N 87.5W 42.3N 85.7W	40 LO	250 N Y	890812	19:40:25	163	230	53	69	
100	84	USA-IN	SO. CHICAGO, GARY, L.M.	41.5N 87.5W 42.2N 85.6W	50 LO	250 N Y	890812	19:40:27	163	230	53	69	
100	85	USA-IN	SO. CHICAGO, GARY, L.M.	41.5N 87.5W 42.2N 85.6W	40 LO	250 N Y	890812	19:40:28	163	230	53	69	
100	86	USA-IN	GARY, MICHIGAN CITY, L.M.	41.5N 87.0W 42.1N 85.4W	40 LO	250 N Y	890812	19:40:30	163	231	53	69	
100	87	USA-IN	FARM COUNTRY	41.5N 86.5W 42.0N 85.3W	60 LO	250 N Y	890812	19:40:32	163	231	53	69	
100	88	USA-IN	FARM COUNTRY	41.0N 86.5W 41.8N 85.2W	50 LO	250 N Y	890812	19:40:34	163	231	53	69	
100	89	USA-MI	ST. JOSEPH, L. MI.	42.0N 86.5W 41.8N 85.0W	40 LO	250 N N	890812	19:40:37	163	232	53	69	
100	90	USA-MI	MICHIGAN CITY, L. MI.	41.5N 86.5W 41.7N 84.9W	60 LO	250 N N	890812	19:40:39	163	232	53	69	
100	91	USA-IN	FARM COUNTRY	41.0N 86.5W 41.5N 84.7W	60 LO	250 N N	890812	19:40:42	163	232	53	69	
100	92	USA-IN	FARM COUNTRY, SALAMONE R	40.5N 85.5W 41.4N 84.6W	40 LG	250 N N	890812	19:40:44	163	233	53	69	
100	93	USA-OH	CINCINNATI, OHIO R. AGR.	39.5N 84.5W 41.0N 84.0W	30 LO	250 N Y	890812	19:40:54	163	234	53	69	
100	94	USA-OH	CINCINNATI, OHIO R. AGR.	39.5N 84.5W 40.8N 83.8W	34 LO	250 N Y	890812	19:40:57	163	234	53	69	
100	95	USA-OH	CINCINNATI, OHIO R. AGR.	39.0N 84.0W 40.6N 83.5W	20 LO	250 N N	890812	19:41:03	163	235	53	69	
100	96	USA-OH	TOLEDO, MAUMEE R. LERIE	41.5N 83.5W 40.3N 83.2W	50 LO	250 N N	890812	19:41:00	163	236	53	69	
100	97	USA-OH	TOLEDO, MAUMEE R. LERIE	41.5N 83.0W 40.2N 83.1W	40 LO	250 N N	890812	19:41:10	163	236	53	69	
100	98		BLURRED	40.2N 83.0W			890812	19:41:11	163	236	53	69	
100	99	USA-OH	TOLEDO, MAUMEE RIVER	41.5N 84.0W 40.1N 82.8W	70 LO	250 N N	890812	19:41:14	163	236	53	69	
100	100	USA-OH	MAHON, MANSFIELD, AGR.	41.0N 83.0W 40.8N 82.7W	50 LO	250 N Y	890812	19:41:16	163	237	53	69	
100	101	USA-OH	MAHON, MANSFIELD, AGR.	40.5N 83.0W 39.9N 82.6W	50 LO	250 N Y	890812	19:41:18	163	237	53	69	
100	102	USA-OH	AGRICULTURE, HAZE	41.0N 84.0W 39.7N 82.4W	70 LO	250 N N	890812	19:41:21	163	237	53	69	
100	103	USA-OH	CINCINNATI, OHIO R.	39.0N 84.5W 39.3N 81.9W	25 LO	250 N N	890812	19:41:30	163	238	53	69	
151	1	USSR-MIDDLE	IRTYSH R. CONTRAIL	51.0N 84.0E 50.7N 83.2E	40 LO	90 N Y	890809	08:38:19	163	227	47	14	
151	2	USSR-MIDDLE	BASHCHELAKSVY MYNS, CONTR	50.5N 84.5E 50.1N 84.5E	50 LO	90 N Y	890809	08:38:34	163	230	47	14	
151	3	USSR-MIDDLE	BUKHTARMA R. CONTRAIL	50.0N 84.5E 49.6N 83.6E	50 NV	90 N Y	890809	08:38:48	163	231	47	14	
151	4	CHINA	ULUNGAR L. OERKHISSU R.	48.0N 87.5E 48.9N 87.2E	50 LO	90 N Y	890809	08:39:00	163	234	46	14	
151	5	CHINA	ULUNGAR L. JUNGGAR BASIN	47.5N 88.5E 48.4N 88.3E	50 LO	90 N Y	890809	08:39:22	163	236	46	14	
151	6	MONGOLIA	HORGON L. ALTAI MTS.	49.6N 89.0E 47.9N 89.2E	75 LO	90 N Y	890809	08:39:34	163	237	46	14	
151	7	MONGOLIA	Gobi DESERT	45.5N 93.5E 45.3N 93.8E	30 NV	90 N N	890809	08:40:38	163	245	44	14	
151	8	MONGOLIA	Gobi DESERT	44.0N 96.5E 43.4N 96.8E	40 NV	90 N Y	890809	08:41:23	163	248	43	14	
151	9	MONGOLIA	Gobi DESERT	43.0N 96.0E 42.6N 96.0E	40 NV	90 N Y	890809	08:41:41	163	251	42	14	
151	10	MONGOLIA	Gobi DESERT	43.0N 96.0E 42.0N 96.7E	40 NV	90 N Y	890809	08:41:53	163	252	42	14	
151	11	CHINA	Gobi DESERT	42.0N 100.0E 41.2N 99.8E	40 NV	90 N N	890809	08:42:11	164	254	41	14	
151	12	CHINA	Gobi DESERT	40.5N 102.0E 39.8N 101.5E	40 NV	90 N Y	890809	08:42:44	164	257	40	14	
151	13	CHINA	Gobi DESERT	40.5N 102.0E	40 LO	90 N Y							
151	14	BRITAIN	ENGLISH CH. FRANCE	51.5N 2.0W 53.7N 3.7W	75 LO	90 N Y	890809	09:58:38	164	258	43	15	
151	15	BRITAIN	ENGLISH CH. FRANCE	51.5N 2.0W 54.0N 2.8W	75 LO	90 N Y	890809	09:58:57	164	258	43	15	
151	16	NETHERLANDS	NORTH SEA, W. FRISIAN IS	53.5N 4.0E 55.0N 1.9E	60 LO	90 N Y	890809	09:59:29	164	259	43	15	
151	17	NETHERLANDS	NORTH SEA, W. FRISIAN IS	54.0N 5.0E	60 LO	90 N Y							
151	18	NETHERLANDS	NORTH SEA, W. FRISIAN IS	53.5N 5.0E 55.4N 5.2E	70 LO	90 N N	890809	10:00:24	164	263	44	15	
151	19	FINLAND	GULF OF BOTHNIA-COASTS	61.0N 20.0E 56.8N 14.0E	80 HO	90 N N	890809	10:01:20	164	265	43	15	
151	20	FINLAND	STOCKHOLM, TURKU	60.5N 22.0E 57.9N 17.4E	80 HO	90 N N	890809	10:02:20	164	268	43	15	
151	21	USSR-EUROPEAN	G. FINLAND, L. PEPUS	59.5N 28.0E 57.2N 23.3E	80 HO	90 N N	890809	10:02:50	164	268	43	15	
151	22	USSR-EUROPEAN	G. FINLAND, L. PEPUS	59.5N 29.0E 57.1N 25.1E	80 HO	90 N N	890809	10:03:14	164	272	49	15	
151	23	USSR-EUROPEAN	CLOUD FRONT CONVERGENCE	57.1N 27.0E	85 HO	90 N N	890809	10:03:37	164	276	49	15	
151	24	USSR-EUROPEAN	CLOUD FRONT, RYBINSK RES	58.5N 39.0E 56.7N 33.4E	90 HO	90 N N	890809	10:04:25	164	285	49	15	
151	25	USSR-EUROPEAN	VOLGA R. L. SHALKAR	52.5N 51.0E 54.8N 46.6E	85 HO	90 N N	890809	10:04:26	164	285	49	15	
151	26	USSR-EUROPEAN	VOLGA R. L. SHALKAR	52.5N 52.0E 54.5N 47.0E	85 HO	90 N N	890809	10:04:38	164	297	49	15	
151	27	USSR-EUROPEAN	CLOUDS, AGRICULTURE	52.0N 54.0E	90 HO	90 N N	890809	10:07:40	164	297	49	15	
151	28	USSR-MIDDLE	CLOUDS, BUKHARSKOYE RES	51.0N 60.0E 52.1N 56.5E	80 HO	90 N N	890809	10:08:07	164	221	48	15	
151	29	USSR-MIDDLE	SYDARYA R. STEPPES	44.0N 65.0E 50.6N 60.3E	60 HO	90 N N	890809	10:08:51	163	227	47	15	
151	30	USSR-MIDDLE	L. YENISEI, STEPPES	50.0N 70.0E 49.4N 63.1E	75 HO	90 N N	890809	10:09:25	163	232	47	15	
151	31	USSR-MIDDLE	SYDARYA R. STEPPES	44.5N 67.5E 48.8N 64.5E	50 HO	90 N N	890809	10:09:42	163	234	46	15	
151	32	USSR-MIDDLE	SYDARYA R. STEPPES	44.5N 70.0E 48.1N 65.0E	50 HO	90 N N	890809	10:09:59	163	236	46	15	
151	33	USSR-MIDDLE	L. BALKHASH, STEPPES	46.5N 75.5E 47.4N 66.8E	50 HO	90 N Y	890809	10:10:12	163	238	46	15	
151	34	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.0E	50 HO	90 N Y							
151	35	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.0E	50 HO	90 N Y							
151	36	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.5E 46.9N 68.1E	50 HO	90 N N	890809	10:10:30	163	240	45	15	
151	37	USSR-MIDDLE	CHU R. MOYUNKUM DESERT	43.5N 72.5E 46.5N 68.8E	40 HO	90 N N	890809	10:10:40	163	241	45	15	
151	38	USSR-MIDDLE	TIAN SHAN, FERGANSKAJA	40.5N 73.0E 46.0N 69.7E	50 HO	90 N N	890809	10:10:52	163	242	45	15	
151	39				LO	N N							
151	40	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.0E 45.4N 70.7E	50 HO	90 N Y	890809	10:11:07	163	244	44	15	
151	41	USSR-MIDDLE	L. BALKHASH, STEPPES	45.5N 75.5E	50 HO	90 N Y							
151	42	USSR-MIDDLE	L. ISSYK-KUL, TIEN SHAN	42.5N 78.5E 42.9N 74.5E	60 HO	90 N N	890809	10:12:05	163	250	42	15	
151	43	CHINA	TIEN SHAN, TAKLAMAKAN	40.5N 77.5E	60 HO	90 N Y							
151	44	CHINA	TIEN SHAN, TAKLAMAKAN	39.5N 78.0E 41.7N 76.1E	50 HO	90 N Y	890809	10:12:31	163	253	42	15	
151	45	CHINA	AKASU R. TAKLAMAKAN	41.5N 81.0E 41.0N 77.0E	50 HO	90 N Y	890809	10:12:46	164	254	41	15	
151	46	CHINA	AKASU R. TAKLAMAKAN	41.0N 81.5E 40.5N 77.7E	50 HO	90 N Y	890809	10:12:58	164	255	41	15	
151	47	CHINA	TIBETAN PLAT. LAKES	33.0N 82.0E 38.4N 80.0E	70 HO	90 N Y	890809	10:13:39	164	259	39	15	
151	48	CHINA	TIBETAN PLAT. LAKES	34.0N 82.0E 37.4N 81.0E	70 HO	90 N Y	890809	10:13:54	164	260	39	15	

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	49	CHINA	TIBETAN PLAT. LAKES	34.5N 83.0E	37.1N 81.7E	70 HO	90 N Y 890809	10:14:10	164 261 38 15
151	50	CHINA	TIBETAN PLAT. LAKES	34.0N 83.5E	36.5N 82.2E	70 HO	90 N Y 890809	10:14:21	164 262 38 15
151	51	CHINA	ALTUN SHAN, TAKLAMAKAN	36.5N 85.5E		50 HO	90 N N		
151	52	CHINA	TIBETAN PLAT. LAKES	33.5N 84.0E	34.8N 84.0E	75 HO	90 N N 890809	10:14:57	164 264 36 15
151	53	CHINA	TIBETAN PLAT. LAKES	32.8N 86.0E		80 HO	90 N N		
151	54	CHINA	TIBETAN PLAT. SILING L.	31.5N 89.5E	32.6N 86.1E	85 HO	90 N N 890809	10:15:40	164 267 35 15
151	55	CHINA	TIBETAN PLAT. LAKES	28.5N 88.0E	31.1N 87.4E	85 HO	90 N N 890809	10:16:00	164 269 33 15
151	56	INDIA	BRAHMAPUTRA RIVER	25.5N 90.5E	28.3N 89.8E	80 HO	90 N N 890809	10:17:04	165 272 31 15
151	57	BAHGLADESH	BRAHMAPUTRA R. MEGHNA R.	24.5N 91.5E	27.0N 90.8E	80 HO	90 N N 890809	10:17:28	165 273 32 15
151	58	INDIA	MEGHNA R. FLOOD	24.8N 92.8E		75 HO	90 N N		
151	59	BURMA	IRRAWADDY R. VALLEY	20.0N 95.5E	22.7N 94.0E	85 HO	90 N N 890809	10:18:40	165 277 27 15
151	60	THAILAND	BIGHT OF BANGKOK, AGR.	12.5N 102.5E	14.5N 99.4E	85 HO	90 N N 890809	10:21:23	165 282 20 15
151	61	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	46.0N 35.0E	51.1N 36.1E	80 HO	90 N Y 890809	11:39:08	163 225 48 16
151	62	USSR-EUROPEAN	DNEPR R. SEA OF AZOV	46.5N 34.5E	50.6N 37.4E	75 HO	90 N Y 890809	11:39:23	163 227 47 16
151	63	USSR-EUROPEAN	DNEPR R. SEA OF AZOV	45.0N 34.5E	50.2N 38.4E	75 HO	90 N Y 890809	11:39:35	163 228 47 16
151	64	USSR-EUROPEAN	SEA OF AZOV, EAST COAST	45.0N 38.0E	48.7N 39.4E	80 HO	90 N Y 890809	11:39:48	163 230 47 16
151	65	USSR-EUROPEAN	SEA OF AZOV, EAST COAST	45.0N 39.0E		75 HO	90 N Y		
151	66	USSR-EUROPEAN	LAKE SEVAN	40.0N 46.0E	42.8N 41.5E	85 HO	90 N N 890809	11:40:14	163 234 46 16
151	67	USSR-EUROPEAN	SEA OF AZOV, DON R.DELTA	45.5N 34.5E		75 HO	90 N Y		
151	68	USSR-EUROPEAN	SEA OF AZOV, DON R.DELTA	45.5N 34.5E	48.5N 42.5E	75 HO	90 N Y 890809	11:40:27	163 235 46 16
151	69	USSR-EUROPEAN	CASPIAN SEA, L. SEVAN	42.0N 48.0E	47.0N 44.9E	60 HO	90 N H 890809	11:40:59	163 239 45 16
151	70	USSR-EUROPEAN	L. SEVAN, CAUCASUS MTNS	40.8N 45.0E	46.3N 46.3E	80 HO	90 N Y 890809	11:41:18	163 241 45 16
151	71	USSR-EUROPEAN	L. SEVAN, CAUCASUS MTNS	39.8N 46.0E	43.6N 47.7E	75 HO	90 N Y 890809	11:41:38	163 244 44 16
151	72	USSR-EUROPEAN	CASPIAN SEA, PESCHANY PT	43.5N 50.5E	43.8N 50.2E	40 NV	90 N Y 890809	11:42:15	163 248 43 16
151	73	USSR-EUROPEAN	CASPIAN SEA, EAST COAST	42.5N 51.0E	42.3N 50.9E	50 NV	90 N Y 890809	11:42:27	163 249 43 16
151	74	USSR-EUROPEAN	CASPIAN SEA, EAST COAST	42.0N 51.5E	42.5N 52.1E	50 NV	90 N Y 890809	11:42:45	163 251 42 16
151	75	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 52.5E		50 NV	90 N Y		
151	76	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.0N 53.0E	41.2N 53.0E	50 NV	90 N Y 890809	11:43:01	163 252 42 16
151	77	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E		50 NV	90 N Y		
151	78	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E	41.2N 53.7E	50 NV	90 N Y 890809	11:43:13	164 253 41 16
151	79	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E		50 NV	90 N Y		
151	80	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.0N 54.0E	40.8N 54.5E	50 NV	90 N Y 890809	11:43:26	164 254 41 16
151	81	USSR-EUROPEAN	UZBOY R. SAYRAKSAR DES.	39.5N 54.0E		30 NV	90 N Y		
151	82	USSR-EUROPEAN	UZBOY R. SAYRAKSAR DES.	39.0N 54.5E	40.0N 55.4E	25 NV	90 N Y 890809	11:43:41	164 256 41 16
151	83	USSR-EUROPEAN	UZBOY R. TSENTRALNYE DES	38.5N 54.5E	38.2N 56.3E	18 NV	90 N Y 890809	11:43:57	164 257 40 16
151	84	USSR-EUROPEAN	TSENTRALNYE DES. MTNS	38.5N 56.5E		18 NV	90 N Y		
151	85	IRAN	KOPPEN DACH MTNS. DES.	38.0N 57.0E	38.4N 57.2E	10 NV	90 N Y 890809	11:44:14	164 259 39 16
151	86	IRAN	KOPPEN DACH MTNS. DESERT	37.5N 57.5E	37.9N 57.8E	10 NV	90 N Y 890809	11:44:25	164 259 39 16
151	87	IRAN	KOPPEN DACH MTNS. DESERT	37.0N 58.0E	37.3N 58.4E	0 NV	90 N Y 890809	11:44:37	164 260 39 16
151	88	USSR-EUROPEAN	TSENTRALNYE DES. AGR.	37.5N 59.5E	36.7N 59.6E	0 NV	90 N Y 890809	11:44:48	164 261 38 16
151	89	USSR-EUROPEAN	TSENTRALNYE DES. AGR.	37.5N 60.0E		0 NV	90 N Y		
151	90	IRAN	MASHHAD. MT. BINALUD	36.0N 59.5E	36.1N 59.7E	0 NV	90 N Y 890809	11:45:01	164 262 38 16
151	91	IRAN	MASHHAD. NE MTN. RANGES	35.5N 60.0E	35.6N 60.2E	0 NV	90 N Y 890809	11:45:12	164 263 37 16
151	92	IRAN	NE MTN. RANGES, SALT FLATS	35.0N 60.5E	35.8N 60.8E	0 NV	90 N Y 890809	11:45:24	164 264 37 16
151	93	AFGHANISTAN	HARI R. NORTH MTN RANGES	34.0N 61.5E	34.1N 61.7E	0 NV	90 N N 890809	11:45:41	164 265 36 16
151	94	AFGHANISTAN	HARI R. NW MTN RANGES	33.8N 62.5E	33.3N 62.5E	0 NV	90 N Y 890809	11:45:54	164 266 35 16
151	95	AFGHANISTAN	HARI R. CENT. MTN RANGES	33.5N 63.5E	32.5N 63.2E	0 LO	90 N Y 890809	11:46:14	164 267 35 16
151	96	AFGHANISTAN	HELMAND R. MARGO DESERT	31.5N 63.5E		0 NV	90 N Y		
151	97	AFGHANISTAN	HELMAND R. CENT. MTN RA.	32.0N 64.5E	31.7N 63.9E	0 NV	90 N Y 890809	11:46:30	164 268 34 16
151	98	AFGHANISTAN	HELMAND R. MARGO DESERT	31.0N 63.5E		0 NV	90 N Y		
151	99	AFGHANISTAN	HELMAND R. MARGO DESERT	31.5N 65.5E	30.6N 64.9E	15 NV	90 N Y 890809	11:46:51	164 270 33 16
151	100	PAKISTAN	SIKHAH RA. MARGO DESERT	29.5N 65.5E	29.4N 65.8E	20 NV	90 N Y 890809	11:47:13	164 271 32 16
151	101	PAKISTAN	MAKRAN RANGES	30.0N 67.5E	28.8N 66.4E	40 LO	90 N Y 890809	11:47:26	164 271 32 16
151	102	PAKISTAN	INDUS R. VALLEY, AGR.	28.0N 64.0E	27.5N 67.5E	40 NV	90 N Y 890809	11:47:51	165 273 31 16
151	103	PAKISTAN	INDUS R. VALLEY, AGR.	27.0N 67.5E		NV	90 N Y		
151	104	PAKISTAN	INDUS R. VALLEY, AGR.	28.0N 68.5E	26.9N 67.9E	40 LO	90 N Y 890809	11:48:03	165 273 30 16
151	105	PAKISTAN	INDUS R. VALLEY, AGR.	26.5N 68.0E	26.2N 68.4E	30 NV	90 N Y 890809	11:48:15	165 274 30 16
151	106	PAKISTAN	INDUS R. VALLEY, AGR.	26.0N 68.0E	25.3N 69.1E	40 NV	90 N Y 890809	11:48:31	165 275 29 16
151	107	PAKISTAN	INDUS R. VALLEY, DELTA	24.5N 69.0E	24.8N 69.5E	60 NV	90 N Y 890809	11:48:42	165 275 29 16
151	108	PAKISTAN	INDUS R. DELTA	24.0N 68.5E	24.0N 70.1E	70 LO	90 N N 890809	11:48:54	165 276 28 16
151	109	PAKISTAN	INDUS R. VALLEY, DELTA	24.5N 69.5E	23.2N 70.6E	NV	90 N Y 890809	11:49:11	165 276 27 16
151	110	INDIA	RIVER EFFLUENT		20.6N 72.5E	90 LO	90 N N 890809	11:49:59	165 278 25 16
151	111	INDIA	DECCAN PLAT. HOGARI R.	15.0N 76.5E	15.1N 76.1E	80 NV	90 N Y 890809	11:51:41	165 282 20 16
151	112	INDIA	DECCAN PLAT. HOGARI R.	14.5N 77.0E	14.2N 76.6E	75 NV	90 N Y 890809	11:51:57	165 282 20 16
151	113	INDIA	DECCAN PLAT. PENNER R.	13.5N 77.5E	12.8N 77.5E	NV	90 N Y 890809	11:52:22	165 283 18 16
151	114	INDIA	COLEROON R. COAST	11.5N 79.0E	11.3N 78.4E	50 NV	90 U Y 890809	11:52:40	165 283 17 16
151	115	INDIA	COLEROON R. COAST	11.0N 79.0E	10.4N 78.9E	50 NV	90 U Y 890809	11:53:05	165 284 16 16
151	116	INDIA	SOUTH END COAST	9.5N 78.5E		60 LO	90 U N		
151	117	INDIA	COLEROON R. SE COAST	11.0N 79.5E	9.4N 79.5E	50 LO	90 U Y 890809	11:53:23	165 284 15 16
151	118	SRI LANKA	SE COAST INDIA. NW CST	9.0N 80.0E	8.8N 79.9E	60 NV	90 U Y 890809	11:53:34	166 284 15 16

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	AL AZ EL OR
151	119	SRI LANKA	NW CST. NE CST. DARK	8.3N 81.0E	8.0N 80.4E	68 NV	90 U Y 890809	11:53:49	166 284 14 16
151	120	SRI LANKA	CENTRAL REGION. DARK	7.5N 81.0E	7.4N 80.7E	70 NV	90 U Y 890809	11:54:00	166 285 14 16
151	121	SRI LANKA	CENTRAL REGION. DARK	7.0N 81.0E	6.6N 81.2E	70 NV	90 U Y 890809	11:54:14	166 285 13 16
151	122	SRI LANKA	SE REGION. S COAST. DARK	6.5N 81.5E	5.8N 81.6E	75 NV	90 U Y 890809	11:54:28	166 285 12 16
151	123	MEXICO	SOUTH COAST. DARK	16.0N 97.0W	16.9N 96.5W	75 NV	90 U Y 890809	12:44:32	161 76 8 17
151	124	MEXICO	SOUTH COAST. DARK	16.0N 96.5W		75 NV	90 U Y		
151	125	MEXICO	SOUTH COAST.	16.5N 96.5W	17.0N 95.0W	80 NV	90 U Y 890809	12:44:50	161 76 8 17
151	126	USA-TN	APPALACHIAN MTHS.	34.5N 82.0W	34.1N 81.3W	20 NV	90 N Y 890809	12:52:37	161 89 26 17
151	127	USA-NC	APPALACHIAN MTHS.	34.5N 81.5W		30 NV	90 N Y		
151	128	USA-VA	APPALACHIAN MTHS.	37.0N 80.5W	36.8N 80.5W	40 NV	90 N Y 890809	12:52:53	161 89 26 17
151	129	USA-VA	APPALACHIAN MTHS.	38.0N 78.0W	38.3N 79.0W	35 NV	90 N Y 890809	12:53:22	161 81 28 17
151	130	USA-NY	CATSKILL MTHS. NY CITY	41.5N 74.0W	42.2N 74.1W	30 NV	90 N Y 890809	12:54:47	161 97 31 17
151	131	USA-NY	CATSKILL MTHS. NY CITY	41.0N 74.5W		30 NV	90 N Y		
151	132	USA-NY	CATSKILL MTHS. HUDSON R.	42.0N 74.0W	42.7N 73.5W	20 NV	90 N Y 890809	12:54:57	161 98 32 17
151	133	USA-MA	NEW ENG. AREA. CONN. R.	42.5N 72.5W		15 NV	90 N Y		
151	134	USA-MA	NEW ENG. AREA. BOSTON	42.5N 72.0W	43.2N 72.8W	15 NV	90 N Y 890809	12:55:06	161 99 32 17
151	135	USA-NY	L. CHAMPLAIN. MONTREAL	44.0N 74.0W	43.4N 72.1W	15 LO	90 N N 890809	12:55:19	161 99 33 17
151	136	IRAQ	EUPHRATES R. L. THARTHAR	29.5N 48.5E	34.4N 38.4E	15 HO	90 N Y 890809	13:16:08	168 264 37 17
151	137	IRAQ	EUPHRATES R. L. NALH	38.0N 48.0E	33.8N 39.0E	10 HO	90 N Y 890809	13:16:21	168 265 36 17
151	138	SAUDI ARABIA	AD DAKHA DESERT. PERS. G	24.0N 49.0E	32.2N 48.4E	20 HO	90 N N 890809	13:16:51	168 267 35 17
151	139	SAUDI ARABIA	AD DAKHA DESERT. PERS. G	24.0N 55.0E	29.7N 42.6E	20 HO	90 N N 890809	13:17:40	168 278 33 17
151	140	SAUDI ARABIA	AD DAKHA DESERT. PERS. G	23.0N 55.0E	27.3N 44.6E	20 HO	90 N N 890809	13:18:26	169 273 31 17
151	141	SAUDI ARABIA	PIVOT IRRIG. JAFURAH DES	23.5N 50.0E	23.3N 47.6E	25 LO	90 N N 890809	13:19:42	169 276 28 17
151	142	OMAN	MUSANDAM PEN. PERSIAN G.	23.5N 55.5E	22.5N 48.2E	25 HO	90 N N 890809	13:19:57	169 277 27 17
151	143	MEXICO	G. CALIF. BAJA. TIBURON I.	28.0N 112.0W	27.5N 112.1W	50 LO	90 N N 890809	14:20:27	161 81 17 18
151	144	MEXICO	G. CALIF. BAJA. TIBURON I.	28.0N 112.5W	28.2N 111.5W	50 LO	90 N N 890809	14:20:40	161 81 18 18
151	145	USA-NM	RIO GRANDE. WHITE SANDS	32.0N 107.0W	30.5N 109.6W	25 HO	90 N N 890809	14:21:25	161 83 20 18
151	146	USA-NM	RIO GRANDE. WHITE SANDS	32.0N 107.5W		20 LO	90 N N		
151	147	USA-NM	RIO GRANDE. WHITE SANDS	33.5N 106.5W	31.9N 108.4W	30 LO	90 N N 890809	14:21:52	161 84 21 18
151	148	USA-NM	RIO GRANDE. WHITE SANDS	33.5N 106.0W	32.5N 107.8W	40 LO	90 N N 890809	14:22:04	161 85 22 18
151	149	USA-NM	RIO GRANDE. ALBUQUERQUE	35.0N 106.5W	33.6N 106.8W	40 LO	90 N N 890809	14:22:16	161 84 23 18
151	150	USA-NM	ALBUQUERQUE. RIO GRANDE	36.0N 106.0W		50 HO	90 N N		
151	151	USA-CO	SAN LUIS VALLEY. ROCKIES	38.0N 106.0W	34.2N 106.2W	60 HO	90 N N 890809	14:22:37	161 86 24 18
151	152	USA-CO	SAN LUIS VALLEY. ROCKIES	38.5N 106.0W	35.0N 105.4W	65 HO	90 N N 890809	14:22:54	161 87 24 18
151	153	USA-CO	HIGH PLAINS. ARKANSAS R.	38.5N 103.0W		50 HO	90 N N		
151	154	USA-CO	HIGH PLAINS. ARKANSAS R.	38.5N 102.5W	36.4N 103.0W	50 HO	90 N N 890809	14:23:26	161 89 26 18
151	155	USA-NE	GREAT PLAINS. PLATTE R.	40.5N 99.0W	38.5N 101.7W	30 HO	90 N N 890809	14:23:06	161 91 28 18
151	156	USA-IA	GREAT PLAINS. OMAHA	42.5N 94.0W	42.4N 93.5W	25 HO	90 N N 890809	14:23:45	161 94 29 18
151	157	USA-MN	GREAT PLAINS. ST. P. / MINN.	45.0N 93.0W	42.9N 96.2W	40 HO	90 N N 890809	14:25:40	161 98 32 18
151	158	USA-WI	MS R. ST. PAUL / MINN.	46.0N 91.0W	43.4N 95.5W	50 HO	90 N N 890809	14:25:51	161 99 32 18
151	159	USA-MI	L. SUPERIOR. KEEWEEHAW P.	48.0N 87.5W	44.9N 83.1W	50 HO	90 N N 890809	14:26:27	161 102 34 18
151	160	USA-MI	L. SUPERIOR. L. MICH.	47.0N 85.5W	45.9N 81.5W	50 HO	90 N N 890809	14:26:51	161 104 35 18
151	161	CANADA-O	L. SUPERIOR. WHITEFISH B	48.0N 84.0W	46.7N 80.2W	60 HO	90 N N 890809	14:27:09	161 105 35 18
151	162	CANADA-O	L. SUPERIOR. WHITEFISH B	48.5N 85.0W	47.6N 88.5W	50 HO	90 N N 890809	14:27:32	161 106 36 18
151	163	CANADA-O	LAKE COUNTRY	49.0N 85.5W	48.1N 87.5W	40 LO	90 N N 890809	14:27:45	161 109 37 18
151	164	CANADA-O	TRANS-CANADA HWY. HEARST	50.0N 82.0W	48.8N 84.1W	50 HO	90 N N 890809	14:28:03	162 111 37 18
151	165	CANADA-O	MATTAGAMI R. ABITIB R.	50.5N 81.5W		50 HO	90 N N		
151	166	CANADA-O	MATTAGAMI RIVER	50.6N 80.5	49.9N 83.6W	75 LO	90 N N 890809	14:28:35	162 114 38 18
151	167	CANADA-O	LA GRANDE R. LAKES	53.5N 76.0W	51.9N 78.6W	85 HO	90 N N 890809	14:29:33	162 121 41 18
151	168	CANADA-N	TORNGAT MTHS. COAST	56.0N 59.0W	55.3N 61.9W	75 LO	90 N N 890809	14:32:19	162 144 46 18
151	169	FRANCE	CORSICA. SARONNA. ITALY	42.5N 8.5E	41.1N 7.9E	25 LO	90 N Y 890809	14:44:27	167 253 42 18
151	170	ITALY	SARDINIA. CORSICA	41.0N 8.5E	40.4N 8.4E	10 NV	90 N Y 890809	14:44:42	167 254 41 18
151	171	ITALY	SARDINIA. CORSICA	40.5N 8.5E	39.8N 9.6E	10 LO	90 N N 890809	14:44:55	167 255 41 18
151	172	ITALY	SICILY	38.5N 12.5E	37.4N 12.3E	20 NV	90 N Y 890809	14:45:45	167 260 39 18
151	173	ITALY	SICILY	38.0N 14.0E	36.7N 13.0E	20 LO	90 N Y 890809	14:45:50	167 261 39 18
151	174	ITALY	SICILY. MALTA. GOZO	36.5N 13.5E	35.3N 14.3E	20 LO	90 N N 890809	14:46:22	168 263 38 18
151	175	LIBYA	GULF OF SIDRA. TRIPOLI	32.5N 15.0E	33.0N 16.7E	8 LO	90 N N 890809	14:47:15	168 264 36 18
151	176	LIBYA	GULF OF SIDRA. COAST	31.5N 17.0E	32.2N 17.5E	10 NV	90 N Y 890809	14:47:31	168 267 35 18
151	177	LIBYA	GULF OF SIDRA. COAST	31.0N 19.0E	31.0N 18.5E	10 NV	90 N Y 890809	14:47:53	168 269 34 18
151	178	LIBYA	GULF OF SIDRA. COAST	30.5N 20.0E	30.2N 19.2E	10 NV	90 N Y 890809	14:48:09	168 270 34 18
151	179	LIBYA	N LIBYA DESERT. PIVOT IR	29.5N 21.5E	29.3N 19.9E	5 LO	90 N N 890809	14:48:26	168 278 33 18
151	180	LIBYA	N LIBYA DESERT. PIVOT IR	28.0N 21.0E		0 LO	90 N N		
151	181	PORTUGAL	LISBON. COAST	38.5N 9.5W		50 LO	90 N N		
151	182	MOROCCO	CASABLANCA. COAST	34.0N 7.5W		60 LO	90 N N		
151	183	WESTERN SAHARA	HAMADA DU DRA. QUARKIZ	26.0N 12.0W		40 HO	90 N N		
151	184	ALGERIA	SANDSTORM. ERG CHECH	25.0N 0.0		40 HO	90 N N		
151	185	ALGERIA	SANDSTORM. ERG IABES	24.0N 1.0W		50 HO	90 N N		
151	186	ALGERIA	SANDSTORM. ERG IABES	26.0N 2.0W		50 HO	90 N N		
151	187	ALGERIA	SANDSTORM			50 HO	90 N Y		
151	188	ALGERIA	SANDSTORM			50 HO	90 N Y		

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	188	NIGER	WADI D'AGORA, HIGH PLAINS	14.5N 2.5E		70 HO	90 N N		
151	190	ATMOSPHERIC LIMB	TERMINATOR		31.8S 37.1E	HO	90 N N	890809 16:37:49	171 276-21 19
151	191	ATMOSPHERIC LIMB	TERMINATOR		32.2S 33.8E	HO	90 N N	890809 16:38:09	171 275-22 19
151	192	USA-HI	NIHAU, KAUAI, OAHU	22.0N 160.0W	22.5N 161.8W	50 LO	90 N N	890809 17:20:11	161 78 12 20
151	193	USA-WA	JUAN DE FUCA STR., CANADA	48.0N 124.0W	50.2N 127.6W	80 HO	90 N N	890809 17:30:02	161 116 39 20
151	194	CANADA-BC	FRASER R. COAST MTHS.	50.0N 120.0W	52.1N 124.0W	80 HO	90 N N	890809 17:30:43	161 121 41 20
151	195	CANADA-S	N. SASKATCHEWAN R. AGR.	52.0N 100.5W	55.2N 112.2W	40 HO	90 N N	890809 17:32:42	161 137 44 20
151	196	CANADA-S	N. SASKATCHEWAN R. AGR.	52.5N 104.0W	54.0N 107.8W	40 HO	90 N Y	890809 17:33:23	161 143 45 20
151	197	CANADA-S	SASKATCHEWAN R. TOBIN L.	52.5N 103.5W		40 HO	90 N Y		
151	198	CANADA-M	L. WINNEPEG GROUP, AGR.	50.0N 97.0W	54.5N 103.7W	50 HO	90 N Y	890809 17:34:00	161 149 46 20
151	199	CANADA-M	L. WINNEPEG GROUP, AGR.	50.0N 98.5W	54.6N 102.1W	50 HO	90 N Y	890809 17:34:11	161 151 46 20
151	200	CANADA-O	HUDSON BAY, NELSON R.	53.5N 88.5W	57.0N 96.6W	70 HO	90 N N	890809 17:35:02	161 160 47 20
151	201	CANADA-O	HUDSON BAY, CAPE LOOKOUT	53.0N 84.0W	57.1N 93.3W	60 HO	90 N N	890809 17:35:30	162 164 48 20
151	202	CANADA-O	HUDSON BAY, KINUSHEO R.	54.5N 83.5W	56.8N 82.9W	60 HO	90 N N	890809 17:36:59	162 180 49 20
151	203	CANADA-NT	HUDSON BAY, BELCHER IS.	56.0N 80.0W	56.6N 80.0W	70 LO	90 N N	890809 17:37:24	162 184 49 20
151	204	CANADA-Q	G. ST. LAW. ANTICOSTI L.	51.0N 67.0W	54.4N 66.3W	70 HO	90 N N	890809 17:39:26	162 205 49 20
151	205	CANADA-N	SW AREA, CAPE BRETON I.	47.0N 58.0W	52.3N 59.3W	40 HO	90 N N	890809 17:40:43	162 217 49 20
151	206	CANADA-N	SW AREA, CAPE BRETON I.	47.0N 57.0W		40 HO	90 N N		
151	207	CANADA-N	RANGE MTHS, STRBELLE L.	50.5N 56.0W	51.2N 56.1W	25 LO	90 N N	890809 17:41:19	162 222 48 20
151	208	CANADA-N	RANGE MTHS, FLANKTON IS.	50.0N 54.0W		20 LO	90 N N		
151	209	CANADA-N	FOGO I. PLANKTON BLOOM	49.5N 54.0W	50.2N 55.0W	30 LO	90 N N	890809 17:41:32	162 224 48 20
151	210	CANADA-N	FOGO I. PLANKTON BLOOM	50.0N 53.0W	50.3N 53.7W	30 LO	90 N N	890809 17:41:47	162 226 48 20
151	211	CANADA-S	AGR. MONTREAL L. DORE L.	53.5N 106.0W	57.0N 108.7W	40 HO	90 N Y	890809 19:07:06	162 175 49 21
151	212	CANADA-S	AGR. MONTREAL L. DORE L.	53.0N 104.5W		40 HO	90 N Y		
151	213	CANADA-Q	ST. LAWRENCE RIVER	47.5N 71.5W	45.3N 67.0W	90 HO	90 N N	890809 19:14:27	163 242 45 21
151	214	USA-NH	C.COD. INTERNAL WAVES	44.0N 71.0W	43.0N 64.0W	60 HO	90 N Y	890809 19:15:06	163 246 44 21
151	215	USA-NH	C.COD. INTERNAL WAVES	43.5N 71.5W	43.1N 63.7W	50 HO	90 N Y	890809 19:15:17	163 248 44 21
151	216	USA-ME	C.COD. INTERNAL WAVES	43.0N 70.5W		40 HO	90 N Y		
151	217	USA-MA	C.COD. INTERNAL WAVES	42.5N 69.5W	42.3N 62.6W	45 HO	90 N Y	890809 19:15:35	163 249 43 21
151	218	USA-MA	C.COD. R. EFFL. EDDY	42.5N 73.0W	41.5N 61.5W	50 HO	90 N Y	890809 19:15:53	163 251 43 21
151	219	USA-MA	C.COD. R. EFFL. EDDY	42.5N 73.0W		50 HO	90 N Y		
151	220	CANADA-S	AGR. LAKE SASKACHUEWA	48.5N 101.5W		30 LO	90 N N		
151	221	USA-MN	AGR. RED LAKES, LOECH L.	47.5N 95.0W		40 LO	90 N N		
151	222	USA-WI	KEEWEENAW PEN. DULUTH	46.5N 90.5W		30 LO	90 N N		
151	223	USA-WI	MS R. WAUSAU, AGR.	45.5N 90.5W		30 LO	90 N N		
151	224	USA-MI	L. MI. DOOR PEN. NW COAST	44.0N 87.0W		35 LO	90 N N		
151	225	USA-MI	L. MI. DOOR PEN. NW COAST	43.0N 86.0W		35 LO	90 N N		
151	226	USA-MI	L. MI. SOUTH COASTS	43.0N 84.5W		30 LO	90 N N		
151	227	USA-MI	L. MI. CST. GRAND RAPID	43.0N 85.5W		35 LO	90 N N		
151	228	USA-IN	L. MI. AGR. FORT WAYNE	41.5N 85.5W		70 LO	90 N Y		
151	229	USA-IN	L. MI. AGR. FORT WAYNE	41.0N 85.0W		70 LO	90 N Y		
151	230	CANADA-O	L. ERIE, N. CST. PEELEE I.	42.0N 82.5W		70 LO	90 N N		
151	231	USA-OH	OHIO R. NEW R. AGR.	39.5N 82.5W		60 LO	90 N Y		
151	232	USA-WV	OHIO R. NEW R. AGR.	38.5N 82.0W		50 LO	90 N Y		
151	233	ATMOSPHERIC LIMB	TERMINATOR			HO	90 U N		
151	234	USA-AK	INLAND PASSAGE, RIVER EFF	58.5N 135.0W		70 HO	90 N Y		
151	235	USA-AK	INLAND PASSAGE, RIVER EFF	58.0N 134.0W		70 HO	90 N Y		
151	236	USA-AK	CLOUDS			80 HO	90 N N		
151	237	USA-AK	BARANOF I. ADMIRALTY I.	54.5N 132.0W		70 HO	90 N N		
151	238	CANADA-BC	COAST MTHS, LAKES	53.0N 122.0W		85 LO	90 N N		
151	239	CANADA-BC	VANCOUVER I. COAST MTHS.	50.5N 125.5W		70 LO	90 N N		
151	240	USA-WA	COLUMBIA R. TACOMA	47.5N 122.0W		50 LO	90 N N		
151	241	USA-WA	COLUMBIA R. SHAKA R.	47.5N 119.5W		40 LO	90 N N		
151	242	USA-WY	SHAKA R. BASIN, BEAR L.	43.0N 108.0W		80 HO	90 N N		
151	243	USA-CO	N/S PLATTE R. ARKANSAS R.	38.0N 102.0W		30 HO	90 N N		
151	244	USA-KS	AGR. ARKANSAS R. N. PL.	37.0N 101.0W		50 HO	90 N N		
151	245	USA-TX	LUBBOCK, RED R. AGR.	33.0N 102.0W		30 HO	90 N N		
151	246	USA-TX	SAN ANGELO, GR. PL. AGR.	29.0N 99.0W		40 HO	90 N N		
151	247	USA-TX	DALLAS/FT. WORTH, GR. PL.	31.3N 96.5W		30 HO	90 N N		
151	248	FED REP OF GERMANY	NORTH PLAINS	52.5N 9.5E		60 LO	90 N N		
151	249	FED REP OF GERMANY	NORTH PLAINS	52.0N 10.0E		70 LO	90 N N		
151	250	FED REP OF GERMANY	WILHEMSHAVEN, MARIENFEL	53.0N 8.5E		80 LO	90 N N		
151	251	POLAND	BALTIC SEA, CST. HEL PEN	53.5N 17.5E		80 LO	90 N N		
151	252	POLAND	G. DANZIG, HEL PEN, GDANSK	54.5N 19.5E		80 LO	90 N N		
151	253	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	56.0N 48.5E		45 LO	90 N Y		
151	254	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 48.5E		45 LO	90 N Y		
151	255	USSR-EUROPEAN	KAMA R. KUYBYSHEV RES.	56.0N 51.5E		45 LO	90 N N		
151	256	USSR-EUROPEAN	KAMA RIVER, AGR.	55.0N 54.5E		45 LO	90 N N		
151	257	USSR-MIDDLE	L. TENGIZ, STEPPES	51.5N 64.0E		50 LO	90 N Y		
151	258	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N 64.5E		50 LO	90 N Y		

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FL	E	S	DATE	GMT	SUN AL	AZ	EL	OR
151	259	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N	69.5E			60	LO	90	N	Y						
151	260	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N	70.0E			60	LO	90	U	Y						
151	261	USSR-MIDDLE	L. BALKASH, DBL EXPOSURE						LO	90	N	N						
151	262	USSR-MIDDLE	L. ISSYK-KUL, TIEN SHAN	40.5N	75.5E			40	HO	90	N	N						
151	263	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	47.3N	82.0E			40	LO	90	N	Y						
151	264	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	46.0N	83.5E			50	LO	90	N	Y						
152	1	BRITAIN	SOLWAY FIRTH, IRISH SEA	54.5N	4.8W	55.2N	5.3W	90	LO	250	N	N	890810	10:00:26	161	132	42	31
152	2	BRITAIN	F. OF FORTH, EDINBURGH	56.5N	3.5W	55.4N	4.1W	90	LO	250	N	N	890810	10:00:37	161	134	43	31
152	3	BRITAIN	SOLWAY FIRTH, MORECAMBE B.	54.5N	4.0W			60	LO	250	N	N						
152	4	BRITAIN	BRISTOL CH. SW. PENINSULA	51.5N	3.5W	55.8N	1.6W	40	HO	250	N	N	890810	10:00:00	161	137	44	31
152	5	SWEDEN	LAKE VATTEN	58.5N	13.0E	56.9N	8.7E	90	LO	250	N	N	890810	10:10:31	161	152	46	31
152	6	SWEDEN	LAKE VATTEN, L. VANERN	58.5N	15.0E	57.0N	10.8E	80	LO	250	N	N	890810	10:10:49	161	155	46	31
152	7	SWEDEN	LAKE VATTEN, AGR.	57.5N	15.5E			90	LO	250	N	N						
152	8	SWEDEN	LAKE VATTEN, AGR.	58.0N	13.0E	57.1N	12.0E	85	LO	250	N	N	890810	10:11:00	161	156	47	31
152	9	SWEDEN	SOUTH COAST	56.5N	14.5E			50	LO	250	N	Y						
152	10	SWEDEN	SOUTH COAST	56.5N	14.0E	57.1N	13.6E	90	LO	250	N	Y	890810	10:11:13	161	159	47	31
152	11	SWEDEN	SE COAST, BELGE PUMPING	56.0N	16.0E			50	LO	250	N	N						
152	12	SWEDEN	OLAND I. KALMAR STR.	57.0N	16.0E	57.1N	15.8E	70	LO	250	N	N	890810	10:11:32	161	162	47	31
152	13	SWEDEN	KALMAR STR. AGR.	57.5N	14.0E			70	LO	250	N	N						
152	14	SWEDEN	GOTLAND I. BALTIC SEA	58.0N	18.0E	57.1N	17.6E	70	LO	250	N	N	890810	10:11:47	161	164	48	31
152	15	SWEDEN	GOTLAND I. BALTIC SEA	57.0N	18.0E	57.1N	18.0E	60	NV	250	N	N	890810	10:11:51	161	165	48	31
152	16	USSR-EUROPEAN	PENZA, SURR R.	53.0N	44.5E	53.8N	45.8E	70	NV	250	N	N	890810	10:16:07	162	208	50	31
152	17	USSR-EUROPEAN	VOLGA R. VOLSI	52.0N	47.0E	52.6N	47.0E	60	NV	250	N	N	890810	10:16:20	162	210	50	31
152	18	USSR-EUROPEAN	SARATOV RES. BARAKOVO	52.5N	48.0E			60	NV	250	N	N						
152	19	USSR-EUROPEAN	L. ELTON, STEPPE	49.5N	47.5E	51.9N	49.2E	70	LO	250	N	N	890810	10:16:44	162	214	51	31
152	20	USSR-EUROPEAN	URAL R. STEPPE	50.0N	51.0E	50.8N	52.0E	30	NV	250	N	Y	890810	10:17:16	162	219	50	31
152	21	USSR-EUROPEAN	URAL R. STEPPE	49.0N	52.0E			60	NV	250	N	Y						
152	22	USSR-EUROPEAN	STEPPE	50.0N	53.5E	50.3N	53.4E	30	NV	250	N	Y	890810	10:17:32	163	221	49	31
152	23	USSR-EUROPEAN	STEPPE, UTL R. AGR.	50.0N	54.5E			25	NV	250	N	Y						
152	24	USSR-EUROPEAN	STEPPE, KHOBDA R. AGR.	49.5N	56.0E	49.6N	54.9E	50	NV	250	N	N	890810	10:17:50	163	224	49	31
152	25	USSR-EUROPEAN	ARAL SEA, DESERT	46.5N	57.5E	48.4N	57.5E	70	LO	250	N	N	890810	10:18:23	163	228	49	31
152	26	USSR-MIDDLE	ARAL SEA, DESERT	46.0N	40.5E	47.2N	59.9E	60	NV	250	N	N	890810	10:18:55	163	232	48	31
152	27	USSR-MIDDLE	ARAL SEA, DESERT	45.0N	64.5E			30	NV	250	N	N						
152	28	USSR-EUROPEAN	ARAL SEA, DESERT	45.0N	59.0E	46.7N	64.7E	40	LO	250	N	N	890810	10:19:06	163	234	48	31
152	29	USSR-EUROPEAN	ARAL SEA, DESERT	45.5N	59.0E			50	LO	250	N	N						
152	30	USSR-EUROPEAN	ARAL SEA, DESERT	45.5N	59.5E	46.1N	61.7E	50	LO	250	N	N	890810	10:19:21	163	236	48	31
152	31	USSR-MIDDLE	ARAL SEA, DESERT	44.5N	52.0E			20	LO	250	N	N						
152	32	USSR-MIDDLE	ZHAKADAR R. KYZYLKUM DES	44.5N	63.5E	45.4N	63.0E	20	NV	250	N	N	890810	10:19:39	163	238	47	31
152	33	USSR-MIDDLE	SYRDAR R. IRREG. AGR.	45.0N	64.5E			40	NV	250	N	N						
152	34	USSR-MIDDLE	SYRDAR R. IRREG. AGR.	44.5N	65.5E	43.9N	65.3E	10	NV	250	N	N	890810	10:22:14	163	242	47	31
152	35	USSR-MIDDLE	SYRDAR R. IRREG. AGR.	44.0N	66.5E			0	NV	250	N	N						
152	36	USSR-MIDDLE	L. AYDARKUL, NGRATAU MTH	41.0N	64.5E	42.6N	67.1E	0	LO	250	N	Y	890810	10:22:42	163	245	46	31
152	37	USSR-MIDDLE	L. AYDARKUL, KYZYLKUM DES	41.0N	65.5E			0	LO	250	N	Y						
152	38	USSR-MIDDLE	SAMARKAND, TURKESTAN MTH	40.0N	64.5E	41.4N	68.7E	0	LO	250	N	Y	890810	10:21:09	163	248	45	31
152	39	USSR-MIDDLE	TURKESTAN MTHS. AGR.	40.0N	69.0E			0	LO	250	N	Y						
152	40	USSR-MIDDLE	KAYRAKUM RES. TURK. MTH	40.0N	70.0E	41.0N	69.3E	0	LO	250	N	Y	890810	10:21:18	163	249	45	31
152	41	USSR-MIDDLE	TURKESTAN MTHS. AGR.	39.5N	71.0E			5	LO	250	N	Y						
152	42	USSR-MIDDLE	TURKESTAN MTHS. MUKSU R	39.5N	71.5E	40.3N	70.1E	5	LO	250	N	Y	890810	10:21:33	163	250	44	31
152	43	USSR-MIDDLE	L. KARAKUL, TURK. MTHS.	39.5N	73.5E	39.2N	71.5E	5	LO	250	N	N	890810	10:21:57	164	253	44	31
152	44	USSR-MIDDLE	L. SAREZ, MT. REVOLUCH	36.5N	72.5E	38.9N	71.8E	0	NV	250	N	Y	890810	10:22:02	164	253	44	31
152	45	USSR-MIDDLE	L. SAREZ, L. YASHLIKUL	38.0N	72.5E	38.4N	72.4E	5	NV	250	N	Y	890810	10:22:13	164	254	43	31
152	46	AFGHANISTAN	L. ZORKUL, HINDU KUSH	37.0N	73.5E	37.8N	73.0E	5	NV	250	N	N	890810	10:22:25	164	255	43	31
152	47	PAKISTAN	INDUS R. HINDU KUSH	36.0N	73.0E	36.5N	74.5E	30	LO	250	N	N	890810	10:22:53	164	258	42	31
152	48	PAKISTAN	GILGIT R. HINDU KUSH	36.0N	74.5E			30	NV	250	N	N						
152	49	PAKISTAN	INDUS R. KARAKORAM RANGE	35.0N	74.5E	36.0N	75.0E	40	LO	250	N	N	890810	10:23:02	164	258	42	31
152	50	CHINA	PANGONG L. TIBETAN PLAT.	33.5N	79.5E	32.3N	78.5E	60	LO	250	N	N	890810	10:24:16	164	264	39	31
152	51	CHINA	SUTLEJ R. TIBETAN PLAT.	32.0N	79.0E			50	NV	250	N	N						
152	52	CHINA	XIANGQUAN R. TIBET PLAT.	31.5N	80.0E	31.1N	79.7E	60	NV	250	N	N	890810	10:24:41	164	266	38	31
152	53	CHINA	LANG L. MAPAM YUN L.	31.0N	81.0E			60	LO	250	N	Y						
152	54	CHINA	LANG L. MAPAM YUN L.	30.5N	81.0E	30.1N	80.5E	60	NV	250	N	Y	890810	10:25:00	164	267	37	31
152	55	INDIA	GHAGHARA R. AGR.	26.0N	81.5E	26.2N	81.6E	60	NV	250	N	N	890810	10:25:25	164	269	36	31
152	56	INDIA	GHAGHARA R. RAPTI R.	26.5N	83.5E	26.6N	83.3E	60	NV	250	N	N	890810	10:26:07	164	271	35	31
152	57	INDIA	GREAT GANDAK R. AGR.	27.0N	84.0E			60	LO	250	N	N						
152	58	ATLANTIC OCEAN	CLOUDS			48.7N	48.1W	70	HO	250	N	N	890810	11:05:22	161	106	34	32
152	59	BRITAIN	ENGLISH CH. PANORAMA	49.5N	4.0W	57.1N	8.3W	70	HO	250	N	N	890810	11:41:54	161	160	47	32
152	60	BRITAIN	IRISH SEA, ISLE OF MAN	54.5N	5.0W	57.1N	5.8W	50	LO	250	N	Y	890810	11:42:15	161	163	48	32
152	61	BRITAIN	IRISH SEA, ISLE OF MAN	54.0N	3.5W			50	LO	250	N	Y						
152	62	BRITAIN	IRISH SEA, SOLWAY FIRTH	54.5N	3.5W	57.1N	4.1W	50	LO	250	N	Y	890810	11:42:30	162	166	48	32
152	63	BRITAIN	IRISH SEA, MORECAMBE BAY	53.5N	3.5W			50	LO	250	N	N						
152	64	BRITAIN	BRISTOL CH. SW. ENGLAND	51.0N	2.5W	57.0N	0.8W	50	HO	250	N	N	890810	11:42:58	162	171	48	32

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL	OR
152	65	SWEDEN	VATTEN L. E CST BALTIC	59.5N 15.5E	55.6N 11.9E	70 LO	250 N N	890810	11:44:51	162 190 50	32
152	66	SWEDEN	BALTIC SEA, EAST CST.	59.5N 20.0E	55.0N 14.3E	60 HO	250 N N	890810	11:45:19	162 195 50	32
152	67	SWEDEN	STOCKHOLM, E CST BALTIC	59.5N 19.0E	54.5N 17.2E	60 LO	250 N N	890810	11:45:41	162 199 50	32
152	68	USSR-EUROPEAN	SAAREMAA I. HUMAA I.	58.0N 23.5E	54.2N 18.5E	70 LO	250 N N	890810	11:45:54	162 201 50	32
152	69	USSR-EUROPEAN	KAKHOV RES. SEA OF AZOV	46.5N 34.5E	49.2N 31.5E	50 LO	250 N N	890810	11:46:17	163 223 49	32
152	70	USSR-EUROPEAN	KERCHEN STR. BLACK SEA	44.0N 36.0E	48.7N 34.0E	40 HO	250 N N	890810	11:46:48	163 227 49	32
152	71	USSR-EUROPEAN	KERCHEN STR. SEA OF AZOV	45.5N 34.0E		50 LO	250 N N				
152	72	TURKEY	BLACK SEA, BATUMI, EDDY	41.0N 41.0E	41.1N 42.0E	30 LO	250 N Y	890810	11:49:41	163 241 47	32
152	73	TURKEY	BLACK SEA, EDDY, SUNGLT	41.5N 40.0E	43.5N 42.0E	20 LO	250 N Y	890810	11:50:54	163 243 47	32
152	74	TURKEY	BLACK SEA, EDDY, SUNGLT	41.0N 40.5E		20 LO	250 N Y				
152	75	TURKEY	KEBAN RES. KARADENIZ MTH	40.0N 38.0E	42.0N 43.0E	50 LO	250 N N	890810	11:51:09	163 244 46	32
152	76	TURKEY	KEBAN RES. KARADENIZ MTH	40.5N 40.0E	42.4N 44.1E	40 LO	250 N N	890810	11:51:14	163 245 46	32
152	77	TURKEY	VAN L. TOROSULAR MTHS.	37.5N 42.5E	42.3N 44.6E	20 LO	250 N N	890810	11:51:22	163 246 46	32
152	78	TURKEY	KEBAN RES. TOROSULAR MTH	38.0N 39.0E	41.8N 45.2E	40 HO	250 N N	890810	11:51:31	163 247 46	32
152	79	IRAQ	TIGRIS/EUPHRATES R.	31.5N 47.5E	34.2N 51.8E	20 HO	250 N N	890810	11:53:31	164 258 42	32
152	80	IRAQ	TIGRIS/EUPHRATES R.	32.0N 48.0E	35.6N 52.4E	20 HO	250 N N	890810	11:53:43	164 259 42	32
152	81	IRAN	ESFAHAN, KUHAYE MTHS	32.0N 52.0E	34.0N 54.0E	10 LO	250 N N	890810	11:54:55	164 261 41	32
152	82	IRAN	KUMHAYE MTHS. PERSIAN G.	29.0N 52.0E	33.4N 54.6E	5 HO	250 N N	890810	11:54:27	164 262 40	32
152	83	OMAN	NE REGION, PERSIAN GULF	22.0N 57.0E		30 HO	90 N N				
152	84	OMAN	NE REGION, PERSIAN GULF	22.5N 55.5E		HO	90 N N				
152	85	MEXICO	SW COAST, VERY DARK	18.0N 103.0W	18.6N 102.2W	40 NV	250 U Y	890810	12:55:35	161 75 4	33
152	86	MEXICO	SW COAST, VERY DARK	18.5N 103.0W	19.6N 102.5W	60 NV	250 U Y	890810	12:55:53	161 75 5	33
152	87	MEXICO	SAH LUIS POTOSI, AGR.	22.0N 101.6W	21.9N 100.9W	25 NV	250 U N	890810	12:56:26	161 76 7	33
152	88	MEXICO	NE FLANKS, SAN GREGORIO	23.5N 100.5W	22.5N 100.5W	50 LO	250 N N	890810	12:56:47	161 76 8	33
152	89	MEXICO	SR MADRE ORIENTAL	23.5N 99.5W	23.5N 99.2W	40 NV	250 N N	890810	12:57:05	161 77 9	33
152	90	MEXICO	CIUDAD VICTORIA, SR MAD.	24.0N 99.5W	23.9N 99.5W	40 NV	250 U N	890810	12:57:13	161 77 9	33
152	91	USA-TX	RIO GRANDE, LAG. MADRE	26.0N 97.5W	25.6N 96.2W	30 NV	250 N Y	890810	12:57:45	161 78 11	33
152	92	USA-TX	RIO GRANDE, LAG. MADRE	26.0N 97.5W		30 NV	250 N Y				
152	93	USA-TX	CORPUS CHRISTI BAY	27.5N 97.5W	26.5N 97.3W	70 NV	250 N Y	890810	12:58:07	161 79 12	33
152	94	USA-TX	CORPUS CHRISTI BAY	28.0N 97.0W		60 NV	250 N Y				
152	95	USA-TX	GALVESTON BAY, EAST BAY	28.0N 95.0W	28.5N 94.8W	30 NV	250 N Y	890810	12:58:40	161 80 14	33
152	96	USA-TX	GALVESTON BAY, EAST BAY	28.5N 95.0W		75 NV	250 N Y				
152	97	USA-TX	GALVESTON BAY, CLEAR L.	29.5N 95.5W	29.4N 95.5W	70 NV	250 N Y	890810	12:58:56	161 80 14	33
152	98	USA-TX	GALVESTON BAY, CLEAR L.	29.5N 95.5W	29.8N 94.9W	75 NV	250 N Y	890810	12:59:05	161 80 15	33
152	99	USA-TX	TRINITY BAY, L. ANAHUAC	29.5N 95.8W		60 NV	250 N Y				
152	100	USA-LA	MS DELTA AREA, MS RHAZE	29.5N 90.5W	31.7N 91.3W	30 LO	250 N N	890810	12:59:41	161 82 17	33
152	101	USA-LA	MS DELTA AREA, MS RHAZE	31.0N 90.5W	32.2N 92.1W	35 LO	250 N N	890810	12:59:51	161 82 17	33
152	102	USA-MS	MS R. MEMPHIS, HAZE	35.0N 90.5W	32.0N 92.2W	40 LO	250 N Y	890810	13:00:04	161 83 18	33
152	103	USA-MS	MS R. MEMPHIS, HAZE	35.0N 89.0W	33.1N 92.0W	50 LO	250 N Y	890810	13:00:09	161 83 18	33
152	104	USA-KY	OHIO R. KY L. L. BARKLEY	36.5N 88.5W	34.1N 91.1W	30 LO	250 N N	890810	13:00:28	161 84 19	33
152	105	USA-KY	CENT. KY. OHIO R. HAZE	37.5N 87.0W	35.4N 89.0W	20 LO	250 N N	890810	13:00:54	161 85 20	33
152	106	USA-KY	CENT. KY. OHIO R. HAZE	37.5N 86.0W	34.5N 88.9W	20 LO	250 N N	890810	13:01:12	161 86 21	33
152	107	USA-KY	LEXINGTON, OHIO R.	38.0N 85.0W	37.2N 87.9W	10 LO	250 N N	890810	13:01:32	161 87 22	33
152	108	USA-OH	OHIO R. CHICKENATI	39.0N 84.0W	38.7N 86.2W	10 LO	250 N N	890810	13:02:03	161 89 24	33
152	109	USA-OH	OHIO R. COLUMBUS, HAZE	40.0N 82.0W	39.3N 85.6W	10 LO	250 N N	890810	13:02:14	161 89 24	33
152	110	USA-PA	L. ERIE/ERIE/ALLEGHENY R	41.5N 80.0W	41.4N 83.0W	5 LO	250 N N	890810	13:02:59	161 92 26	33
152	111	USA-PA	MONONGAHELA R. PITTSBURGH	40.0N 79.5W	41.7N 82.5W	40 LO	250 N N	890810	13:03:07	161 93 27	33
152	112	USA-NY	NIAGARA R. BUFFALO, HAZE	43.0N 78.5W	42.5N 81.5W	10 LO	250 N N	890810	13:03:24	161 94 27	33
152	113	USA-MI	DETROIT, L. ST. CLAIR	42.5N 82.5W	43.4N 81.2W	30 LO	250 N N	890810	13:03:45	161 95 28	33
152	114	USA-PA	SUSQUEHANNA R. CATSKILLS	41.5N 76.0W	44.3N 78.0W	40 LO	250 N N	890810	13:04:04	161 97 29	33
152	115	USA-NY	MOHAWK R. VAL. SYRACUSE	42.5N 75.0W	44.5N 72.6W	40 LO	250 N Y	890810	13:04:09	161 97 29	33
152	116	USA-NY	MOHAWK R. VAL. CATSKILLS	42.5N 74.5W	44.7N 72.7W	40 LO	250 N Y	890810	13:04:15	161 97 30	33
152	117	USA-NY	UTICA, WATERTOWN, ADMTH	44.0N 75.0W	45.2N 77.4W	5 LO	250 N N	890810	13:04:27	161 98 30	33
152	118	CANADA-Q	MONTREAL, ST LAWRENCE R.	45.5N 73.0W	45.8N 76.5W	5 LO	250 N N	890810	13:04:40	161 99 31	33
152	119	CANADA-Q	MONTREAL, L. CHAMPLAIN	45.5N 73.0W	44.4N 75.5W	10 LO	250 N N	890810	13:04:54	161 101 31	33
152	120	USA-NH	CONN R. GREEN MTHS.	44.5N 71.5W	47.3N 73.8W	20 LO	250 N N	890810	13:05:17	161 103 32	33
152	121	CANADA-Q	ST FRANCIS R. SHERBROOK	45.5N 71.0W	47.7N 73.0W	10 LO	250 N Y	890810	13:05:28	161 104 33	33
152	122	USA-ME	CHAUDIERE R. LONGF. MTHS	46.0N 69.5W	48.1N 72.2W	5 LO	250 N Y	890810	13:05:39	161 105 33	33
152	123	ATLANTIC OCEAN	INT. WAVES, CONTRAIL		47.6N 83.0W	50 LO	250 N N	890810	13:05:18	163 230 49	34
152	124	FRANCE	BRITTANY, CH. ISLANDS	49.5N 3.5W	47.0N 8.0W	50 LO	250 N N	890810	13:05:34	163 232 49	34
152	125	FRANCE	BRITTANY, CH. ISLANDS	48.5N 2.5W	46.5N 7.0W	60 LO	250 N N	890810	13:06:47	163 233 48	34
152	126	FRANCE	BRITTANY, BISCAY COAST	48.0N 2.0W	45.7N 6.5W	60 LO	250 N N	890810	13:06:06	163 235 48	34
152	127	FRANCE	BISCAY COAST	46.5N 0.5E	44.8N 5.0W	75 LO	250 N N	890810	13:06:28	163 238 48	34
152	128	SPAIN	INT. WAVES, BISCAY COAST	44.0N 6.0W	43.7N 3.3W	60 LO	250 N N	890810	13:06:53	163 241 47	34
152	129	SPAIN	EBRO R. SEMI-ARID REGION	42.5N 2.0W	42.7N 1.9W	70 LO	250 N N	890810	13:07:15	163 244 47	34
152	130	SPAIN	VALENCIA, IBERIC MTHS.	40.0N 0.5W	41.3N 0.0W	50 NV	250 N N	890810	13:07:47	163 247 46	34
152	131	SPAIN	IBERICO MTHS, MED COAST	40.5N 0.0		60 NV	250 N N				
152	132	BALEARIC ISLANDS	ISLA ISLAND	39.5N 1.0E	40.0N 1.6E	30 NV	250 N N	890810	13:07:15	163 250 45	34
152	133	BALEARIC ISLANDS	MALLORCA ISLAND	39.5N 2.5E	39.3N 2.4E	60 NV	250 N N	890810	13:07:28	164 251 45	34
152	134	ALGERIA	MED COAST, WADI SEBAOU	37.5N 4.0E	37.5N 4.4E	40 NV	250 N N	890810	13:07:04	164 255 43	34



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL. S	DATE	GMT	SUN AL AZ EL	OR
152	135	ALGERIA	MED COAST, SKIKFA	37.0N 7.0E	37.0N 5.0E	20 LO	250 N	890810	14:54:17	164 256 43	34
152	136	ALGERIA	MED COAST, WADI SEBAOU	37.0N 4.0E	36.5N 5.5E	40 LO	250 N	890810	14:54:27	164 257 43	34
152	137	ALGERIA	CHOTT HOUMA, TELL ATLAS	35.5N 5.0E	36.1N 6.0E	35 NV	250 N	890810	14:54:36	164 257 42	34
152	138	TUNESIA	TOZEUR, GAFSA, METLAOUJ	34.0N 8.0E	34.2N 7.9E	10 NV	250 N	890810	14:55:16	164 261 41	34
152	139	TUNESIA	DJERBA I. BOU GRARA LAG.	33.5N 10.5E	32.4N 8.9E	0 NV	250 N	890810	14:55:38	164 264 40	34
152	140	LIBYA	BASH, WADI DIENEME	31.0N 10.5E	31.6N 10.3E	0 NV	250 N	890810	14:56:06	164 264 39	34
152	141	ALGERIA	GR. ERG OR, GHUJAMSE	30.5N 9.0E	30.6N 11.1E	0 LO	250 N	890810	14:56:24	164 264 38	34
152	142	LIBYA	AL HAMMADAH AL KAMRA	29.5N 12.5E	29.6N 12.0E	5 NV	250 N	890810	14:56:44	164 267 38	34
152	143	LIBYA	TIRERENE DUNES	28.0N 11.5E	28.7N 12.7E	30 LO	250 N	890810	14:57:01	164 268 37	34
152	144	LIBYA	RAMLAT EL MARZUCHA	26.5N 14.5E	25.9N 14.9E	0 NV	250 N	890810	14:57:55	165 271 35	34
152	145	LIBYA	RAMLAT EL MARZUCHA	26.5N 15.0E	25.7N 15.1E	0 NV	250 N	890810	14:57:59	165 272 35	34
152	146	LIBYA	UAD EN NAMUS, SERIR TIB.	25.0N 17.5E	24.7N 15.9E	0 LO	250 N	890810	14:58:18	165 273 34	34
152	147	CANADA-BC	FRASER R. PRINCE GEORGE	54.0N 123.0W	54.6N 122.7W	40 NV	250 N	890810	17:40:39	161 127 41	36
152	148	CANADA-M	NELSON R. HUDSON BAY	57.5N 93.5W	57.1N 94.0W	50 LO	250 N	890810	17:44:19	161 161 47	36
152	149	CANADA-M	NELSON R. HUDSON BAY	57.0N 93.4W	57.1N 94.7W	30 LO	250 N	890810	17:44:47	161 164 48	36
152	150	CANADA-O	CLEAR LAKES	55.5N 75.0W	55.3N 76.4W	80 LO	250 N	890810	17:47:12	162 191 50	36
152	151	CANADA-N	ST. GEORGE FENST ANDREW	48.5N 60.0W	49.7N 60.5W	10 NV	250 N	890810	17:50:25	163 221 50	36
152	152	CANADA-N	STEPHENVILLE, ST. GEORGE P	49.0N 59.5W		15 NV	250 N	Y			
152	153	CANADA-N	BAY OF ISLANDS, ROCKY MNR	49.5N 59.0W	49.4N 59.5W	10 NV	250 N	890810	17:50:34	163 222 50	36
152	154	CANADA-N	BAY OF ISLANDS, SUMMERSID	49.0N 59.0W		20 NV	250 N	Y			
152	155	CANADA-N	SUMMERSIDE, GRAND LAKE	48.5N 57.5W	49.0N 58.0W	40 NV	250 N	890810	17:50:46	163 224 50	36
152	156	CANADA-N	SUMMERSIDE, BAY OF ISL.	49.0N 58.0W		25 NV	250 N	Y			
152	157	ATLANTIC OCEAN	CONTRALES, INT. WAVES		47.0N 54.5W	30 LO	250 N	890810	17:51:36	163 231 49	36
152	158	CANADA-N	AVATON, PENTREPASSEY BAY	46.5N 53.5W	46.4N 53.6W	40 LO	250 N	890810	17:51:52	163 233 49	36
152	159	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W	16.2N 26.5W	40 NV	250 N	890810	18:01:57	165 279 28	34
152	160	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W		40 NV	250 N	Y			
152	161	USA-AK	BARANOF I. CHATHAM STR.	56.5N 135.5W	56.5N 132.7W	30 LO	250 N	890810	20:04:59	162 177 49	38
152	162	CANADA-A	RED DEER, GULL LAKE, AGR	52.5N 114.5W	52.0N 114.3W	50 NV	250 N	890810	20:04:49	162 205 50	38
152	163	CANADA-S	DEFENBAKER R. AGR.	51.0N 107.5W	50.9N 109.2W	40 LO	250 N	890810	20:04:53	162 215 50	38
152	164	CANADA-S	REGINA, EAST MOUNTAIN L.	50.5N 105.5W	49.8N 106.5W	50 NV	250 N	890810	20:05:25	163 220 50	38
152	165	USA-MO	L. SAKAKAWA, MO. R. AGR	47.5N 192.0W	47.0N 192.7W	40 NV	250 N	890810	20:05:20	163 227 50	38
152	166	USA-MO	L. ML. PANORAMA	45.0N 94.0W	42.0N 94.1W	50 HO	250 N	890810	20:05:17	163 242 47	38
152	167	USA-MO	MS. R. WL. R. AGR.	43.0N 90.5W	42.0N 92.9W	60 LO	250 N	890810	20:05:36	163 244 47	38
152	168	USA-MO	MS. R. FREEPORT, AGR	42.0N 89.5W		40 LO	250 N	N			
152	169	USA-MO	L. ML. ROCKFORD, AGR	42.5N 89.0W	41.7N 92.5W	50 LO	250 N	890810	20:05:44	163 245 47	38
152	170	USA-MO	L. ML. ROCKFORD, AGR	42.5N 89.0W		40 LO	250 N	N			
152	171	USA-MO	MS. R. ROCK R. AGR	42.0N 89.0W	41.1N 91.7W	50 LO	250 N	890810	20:05:57	163 246 47	38
152	172	USA-MO	MS. R. ST. LOUIS, MO. R.	38.5N 89.5W		60 LO	250 N	N			
152	173	USA-IN	FRANKFORT, AGR. L. ML.	41.0N 86.5W	40.0N 90.4W	60 LO	250 N	890810	20:05:20	163 249 46	38
152	174	USA-IN	AGRICULTURE	40.5N 86.5W		60 LO	250 N	N			
152	175	USA-IN	INDIANAPOLIS, AGR.	40.0N 85.5W	39.2N 89.5W	70 LO	250 N	890810	20:05:36	164 250 46	38
152	176	USA-IN	INDIANAPOLIS, AGR.	39.5N 85.5W		60 LO	250 N	N			
152	177	USA-IN	CINCINNATI, OHIO R. AGR	39.0N 85.5W	38.4N 88.5W	60 LO	250 N	890810	20:05:54	164 252 45	38
152	178	USA-KY	CINCINNATI, OHIO R. AGR	38.5N 85.0W	37.4N 87.4W	60 LO	250 N	890810	20:06:14	164 254 44	38
152	179	USA-KY	LOUISVILLE, OHIO R. AGR	37.5N 85.5W		60 LO	250 N	N			
152	180	USA-MC	GREENVILLE, SPARTANBURG	35.5N 81.5W	35.3N 85.2W	60 LO	250 N	890810	20:06:59	164 258 43	38
152	181	USA-SC	GREENVILLE, SPARTANBURG	34.5N 82.0W		60 LO	250 N	N			
152	182	USA-SC	GREENVILLE, HARTWELL RES	34.0N 82.0W	34.0N 84.7W	50 LO	250 N	890810	20:07:09	164 259 43	38
152	183	MOROCCO	STR. GIBRALTAR, GIBRALTAR	35.5N 6.0W	33.9N 7.6W	40 LO	250 N	890811	07:06:43	161 82 15	45
152	184	SPAIN	STR. GIBRALTAR, GIBRALTAR	36.0N 6.5W		50 LO	250 N	N			
152	185	MOROCCO	STR. GIBRALTAR, GIBRALTAR	35.5N 5.5W	35.4N 5.6W	25 NV	250 N	890811	07:07:12	161 83 17	45
152	186	MOROCCO	TANGER, GIBRALTAR	35.5N 6.0W		30 NV	250 N	Y			
152	187	MOROCCO	TANGER, GIBRALTAR	35.5N 5.5W	34.2N 4.7W	30 NV	250 N	890811	07:07:29	161 84 18	45
152	188	SPAIN	SAN JAYER LAG. COAST	38.5N 0.0	38.0N 2.9W	0 LO	250 N	890811	07:08:05	161 85 19	45
152	189	FRANCE	MARSEILLE, RHONE R. CST	43.0N 5.0E	42.2N 3.2E	5 LO	250 N	890811	07:09:49	161 91 24	45
152	190	FRANCE	MARSEILLE, RHONE R. CST	43.0N 5.5E		5 LO	250 N	Y			
152	191	ITALY	ALPS, L. MAGGIORE	45.0N 8.5E	45.4N 7.1E	70 LO	250 N	890811	07:10:40	161 96 27	45
152	192	ITALY	ALPS, L. MAGGIORE	45.5N 8.5E		70 LO	250 N	Y			
152	193	FED REP OF GERMANY	NEW AIRFIELD		47.4N 11.0E	95 LO	250 N	890811	07:11:44	161 100 30	45
152	194	FED REP OF GERMANY	TWO STRIP AIRFIELD			95 LO	250 N	Y			
152	195	AUSTRIA	SALZBURG, MT. MITTENDORF	47.5N 13.5E	48.6N 12.9E	40 LO	250 N	890811	07:12:00	161 102 31	45
152	196	AUSTRIA	SALZBURG, MT. MITTENDORF	47.5N 14.0E		40 LO	250 N	Y			
152	197	CZECHOSLOVAKIA	PRAGUE, VLTAVA R. AGR.	50.0N 15.0E	49.0N 15.8E	50 NV	250 N	890811	07:12:44	161 106 32	45
152	198	POLAND	AGRICULTURE	50.5N 18.5E	50.9N 18.3E	70 NV	250 N	890811	07:13:14	161 109 34	45
152	199	POLAND	BYSTRZYCA R. LUKOW, AGR	51.5N 22.5E	52.5N 22.7E	40 NV	250 N	890811	07:14:04	161 114 36	45
152	200	POLAND	BYSTRZYCA R. LUKOW, AGR	51.5N 22.5E	53.2N 24.8E	40 LO	250 N	890811	07:14:26	161 117 37	45
152	201	USSR-EUROPEAN	HEMAN R. VOLKOVYISK	53.0N 24.5E	53.4N 25.5E	50 NV	250 N	890811	07:14:33	161 117 37	45
152	202	USSR-EUROPEAN	KUYBYSHEV RES. VOLGA R.	55.0N 48.0E	56.9N 46.8E	80 LO	250 N	890811	07:17:51	161 145 44	45
152	203	USSR-EUROPEAN	VYATKA R. AGRICULTURE	57.5N 49.0E	57.0N 49.2E	40 NV	250 N	890811	07:18:12	161 149 45	45
152	204	USSR-EUROPEAN	KAMA R. NEW RESERVOIR	56.0N 52.0E	57.1N 50.7E	30 LO	250 N	890811	07:18:25	161 151 45	45

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL	OR
152	285	USSR-EUROPEAN	KAMA R. NEW RESERVOIR	54.5N 52.0E	57.1N 52.0E	40 LO	250 N N	890811 07:18:36	161 152 46	45
152	286	USSR-EUROPEAN	KAMA R. VOTKMSKOYE RES	57.5N 54.5E	57.2N 54.6E	10 NV	250 N Y	890811 07:18:58	161 154 46	45
152	287	USSR-EUROPEAN	KAMA R. BAKHAREVKA	58.0N 55.5E	57.1N 54.0E	25 NV	250 N Y	890811 07:19:10	161 158 47	45
152	288	USSR-EUROPEAN	KAMA R. BAKHAREVKA	57.5N 54.5E	57.1N 57.2E	40 NV	250 N Y	890811 07:19:20	161 160 47	45
152	289	USSR-EUROPEAN	KAMA R. BAKHAREVKA	57.5N 54.0E	57.1N 57.7E	40 NV	250 N Y	890811 07:19:24	161 160 47	45
152	210	USSR-EUROPEAN	KAMA RIVER, AGR.	54.5N 54.0E	57.1N 54.3E	40 LO	250 N H	890811 07:19:29	161 161 47	45
152	211	USSR-EUROPEAN	SVERDLOVSK, REYDA	57.0N 59.5E	57.1N 59.0E	60 NV	250 N N	890811 07:19:35	161 162 47	45
152	212	USSR-MIDDLE	SVERDLOVSK, ASBEST. AGR.	57.0N 61.5E	57.0N 60.6E	40 NV	250 N H	890811 07:19:49	161 165 48	45
152	213	USSR-MIDDLE	KYSHTYM, KASIL AGR.	55.5N 60.0E	56.0N 61.3E	60 LO	250 N H	890811 07:19:55	161 166 48	45
152	214	USSR-MIDDLE	TOBAL R. AGR.	55.5N 65.0E	56.7N 64.4E	60 LO	250 N H	890811 07:20:22	162 170 48	45
152	215	USSR-MIDDLE	IRTYSH R. VAGAY R.	57.5N 68.0E	56.3N 68.5E	80 LO	250 N H	890811 07:20:58	162 176 49	45
152	216	USSR-MIDDLE	L. EBYTY, L. ULKEN-KAROY	55.0N 71.0E	55.0N 71.6E	90 NV	250 N H	890811 07:21:26	162 181 50	45
152	217	USSR-MIDDLE	L. ULKEN-KAROY	53.5N 71.5E	55.0N 71.9E	90 LO	250 N H	890811 07:21:29	162 181 50	45
152	218	USSR-MIDDLE	OMSK	53.4N 73.5E	55.7N 72.4E	90 LO	250 N Y	890811 07:21:54	162 182 50	45
152	219	USSR-MIDDLE	OMSK	55.0N 73.0E	55.5N 73.6E	90 NV	250 N Y	890811 07:21:45	162 184 50	45
152	220	USSR-MIDDLE	LAKE CHANY	54.5N 77.5E	54.0N 77.0E	85 NV	250 N H	890811 07:22:17	162 190 50	45
152	221	USSR-MIDDLE	KAMEN KA-OB, OB R.	53.5N 81.0E	53.0N 81.0E	45 NV	250 N Y	890811 07:22:57	162 196 51	45
152	222	USSR-MIDDLE	KAMEN KA-OB, OB R.	53.5N 80.5E	53.6N 81.9E	45 NV	250 N Y	890811 07:23:06	162 198 51	45
152	223	USSR-MIDDLE	TEELI ZAPADNYI MTKS.	51.0N 89.5E	51.0N 89.7E	70 NV	250 N H	890811 07:24:31	162 211 51	45
152	224	MONGOLIA	TYUN R. NARTYH R.	45.5N 101.0E	45.6N 100.0E	20 NV	250 N H	890811 07:26:54	163 232 50	45
152	225	MONGOLIA	BAGA BOGD MTN. TSOGAAN R	44.6N 101.5E		20 NV	250 N H			
152	226	MONGOLIA	ONGYIN R. ULAAH L.	44.5N 103.5E	44.5N 102.6E	5 NV	250 N H	890811 07:27:20	163 234 50	45
152	227	MONGOLIA	GALBIN DESERT	42.0N 106.0E	42.1N 106.1E	20 NV	250 N H	890811 07:28:15	163 241 49	45
152	228	CHINA	HUANG R. KAFENGJONGJIANG	35.0N 114.5E	36.1N 113.1E	25 LO	250 N Y	890811 07:30:22	164 254 45	45
152	229	CHINA	HUANG R. KAFENGJONGJIANG	35.0N 114.0E	35.0N 113.4E	20 NV	250 N Y	890811 07:30:28	164 255 45	45
152	230	CHINA	SHANQI, MINGGUAN	34.5N 115.5E	35.0N 114.3E	50 LO	250 N Y	890811 07:30:45	164 256 45	45
152	231	CHINA	SHANQI, MINGGUAN	34.5N 115.5E	34.0N 114.5E	50 LO	250 N Y	890811 07:30:48	164 257 45	45
152	232	CHINA	LI R. LUOHE	33.5N 114.0E	34.0N 115.5E	30 LO	250 N H	890811 07:31:45	164 258 44	45
152	233	CHINA	CHAO L. HUAI R. WABU L.	31.5N 117.0E	32.0N 116.4E	10 LO	250 N H	890811 07:31:28	164 260 43	45
152	234	CHINA	CHAO L. YANGTZE R. WUBU	31.5N 118.0E	32.5N 118.3E	15 LO	250 N H	890811 07:31:38	164 261 43	45
152	235	CHINA	YANGTZE R. NANJING, WUBU	32.0N 118.0E	32.1N 117.0E	20 NV	250 N H	890811 07:31:42	164 261 43	45
152	236	CHINA	YANGTZE R. NANJING, SAN R.	32.5N 118.5E	31.0N 117.5E	25 LO	250 N H	890811 07:31:45	164 262 43	45
152	237	CHINA	YANGTZE R. WUCHANG L.	30.5N 117.0E	31.5N 117.7E	25 NV	250 N H	890811 07:31:58	164 262 42	45
152	238	CHINA	FUCHUN R. HANGZHOU	30.5N 120.0E	30.5N 118.4E	35 LO	250 N Y	890811 07:32:12	164 263 42	45
152	239	CHINA	FUCHUN R. HANGZHOU	30.0N 120.5E	30.0N 118.5E	30 LO	250 N Y	890811 07:32:16	164 264 42	45
152	240	CHINA	WENZHOU, COAST	28.0N 120.5E	28.4N 119.4E	40 LO	250 N H	890811 07:32:35	164 265 41	45
152	241	CHINA	JAODIANG, YENGAN R. CST	28.5N 121.5E	29.2N 119.5E	40 LO	250 N H	890811 07:32:38	164 265 41	45
152	242	CHINA	JAODIANG, YENGAN R. CST	29.5N 121.5E	29.0N 119.7E	70 LO	250 N H	890811 07:32:42	164 266 41	45
152	243	CHINA	WENZHOU, COAST	27.5N 120.0E	28.4N 120.0E	40 NV	250 N H	890811 07:32:50	164 266 40	45
152	244	CHINA	WENZHOU, HUAI L. COAST	28.5N 121.0E	28.4N 122.2E	46 LO	250 N H	890811 07:32:54	164 266 40	45
152	245	CHINA	WENZHOU, HUAI L. COAST	28.0N 121.0E	27.0N 121.3E	30 NV	250 N Y	890811 07:32:20	164 268 39	45
152	246	CHINA	WENZHOU, COAST	27.5N 120.5E	26.0N 121.4E	40 NV	250 N Y	890811 07:32:24	164 268 39	45
152	247	CHINA	COAST	27.5N 120.5E	26.4N 121.5E	40 LO	250 N Y	890811 07:32:27	164 269 39	45
152	248	TAIWAN	EAST COAST	23.5N 120.0E	26.1N 122.0E	20 LO	250 N H	890811 07:33:38	165 269 39	45
152	249	TAIWAN	EAST COAST	24.0N 120.0E	25.0N 122.2E	20 LO	250 N H	890811 07:33:42	165 269 38	45
152	250	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 123.5E	24.0N 122.9E	50 NV	250 N H	890811 07:34:01	165 271 38	45
152	251	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 124.0E	24.4N 123.1E	50 NV	250 N H	890811 07:34:05	165 271 38	45
152	252	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 123.5E	24.2N 123.4E	50 LO	250 N H	890811 07:34:03	165 271 37	45
152	253	JAPAN	SAKISHIMA ISLANDS	25.0N 125.5E	23.4N 124.0E	50 LO	250 N H	890811 07:34:28	165 272 37	45
152	254	INDONESIA	IRIAN JAYA, HAMBERAWO R.	3.0S 139.0E	5.0S 141.7E	50 LO	250 N H	890811 07:43:16	166 287 12	45
152	255	GERMAN DEMOCRATIC REP								
		250 N H		SALLER BAY, THE GRABOW	54.5N 12.5E					
153	0 A	IRAN	TIGRIS/EUPHRATES DELTA	30.5N 44.5E		0 LO	250 N H			
153	0 B	SAUDI ARABIA	TARUT AL QATIF, COAST	27.0N 50.5E		0 LO	25 N H			
153	0 C	SAUDI ARABIA	ABU ALI L. COAST	27.5N 50.0E		0 LO	25 N H			
153	0 D	UNITED ARAB EMIRATES	UMM SHAIF OIL FIELD, FIRE	25.5N 53.0E		0 LO	250 N H			
153	0 E	UNITED ARAB EMIRATES	ABU DHABI, TRUCIAL CST	24.5N 54.5E		0 NV	250 N H			
153	0 F	USA-KS	MO. R. KS. R. KANSAS CTRY	39.0N 95.5W		40 LO	250 N Y			
153	0 G	USA-KS	OTTAWA, KS. R. LAWRENCE	38.5N 95.5W		40 LO	250 N Y			
153	0 H	USA-KS	KANSAS CITY, MO. R. KS. R.	39.5N 95.5W		40 LO	250 N Y			
153	0 J	USA-IL	CHICAGO, WAUKEGAN	42.5N 88.0W		20 LO	250 N H			
153	0 K	USA-WI	GREEN BAY, AGR.	44.5N 87.5W		50 LO	250 N H			
153	0 L	USA-WI	L.M. MUSKEGON, COAST	43.5N 87.0W		60 LO	250 N H			
153	0 M	USA-WI	L. M. MUSKEGON, BLURRED	43.0N 87.0W		30 LO	250 N H			
153	0 N	USA-IL	ILR. ROCKFORD, MS. R. HAZE	42.0N 89.5W		15 LO	250 N H			
153	0 P	USA-IA	MS. R. RL/DAV. HAZE	42.0N 90.5W		15 LO	250 N H			
153	0 Q	USA-WI	RACINE, MILWAUKEE, L.M.	43.5N 88.5W		70 LO	250 N H			
153	0 R	USA-WI	RACINE, KENOSHA, WAUKEGAN	43.0N 88.0W		50 LO	250 N H			
153	0 S	USA-WI	MILWAUKEE, RACINE, L.M.	43.5N 88.5W		60 LO	250 N H			
153	0 T	USA-WI	GREEN BAY, L. WINNEBAGO	44.0N 88.5W		60 LO	250 N H			
153	0 U	USA-WI	GREEN BAY, AGR.	44.5N 88.5W		50 LO	250 N H			



**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
153	0 V	USA-WI	GREEN BAY, MARINETTE	44.5N 88.8W		48 LO	250 N N		
153	0 W	USA-WI	GREEN BAY, MARINETTEAGR	45.0N 88.5W		38 LO	250 N N		
153	0 X	USA-WI	MENOMNEE R. MARINETTE	45.5N 88.8W		25 LO	250 N N		
153	0 Y	USA-MI	MENOMNEE R. GREEN BAY	45.5N 87.5W		25 LO	250 N N		
153	0 Z	USA-MI	GREEN BAY, ESCANABA	46.0N 87.5W		20 LO	250 N N		
153	0A	USA-MI	GREEN BAY, L. SUPERIOR	46.5N 87.5W		25 LO	250 N N		
153	0AB	USA-MI	SAULT STE. MARIE, L. MI.	46.5N 85.8W		35 LO	250 N N		
153	0AC	CANADA-O	L. SUPERIOR, SW COAST	47.0N 85.0W		38 LO	250 N N		
153	0AD	USA-MI	NE CST. L. SUPERIOR	46.0N 86.8W		48 LO	250 N N		
153	0AE	USA-MI	STR. MACKINAC, BRIDGE	46.0N 85.8W		35 LO	250 N N		
153	0AF	USA-MI	STR. MACKINAC, CHEBOYGAN	45.5N 84.5W		15 LO	250 N N		
153	0AG	CANADA-O	SAULT STE. MARIE	47.0N 84.6W		28 LO	250 N N		
153	0AH	USA-MI	STR. MACKINAC, L. MI.	46.0N 85.5W		48 LO	250 N N		
153	0AJ	USA-MI	STR. MACKINAC, BEAVER I.	46.0N 85.5W		48 LO	250 N N		
153	0AK	USA-MI	GRAND I. L. SUPERIOR	46.5N 84.5W		48 LO	250 N N		
153	0AL	USA-MI	MARQUETTE, GRAND I.	46.5N 87.8W		48 LO	250 N N		
153	0AM	USA-MI	MARQUETTE, GRAND I.	46.0N 87.8W		48 LO	250 N N		
153	0AN	USA-MI	L. SUPERIOR, NE COAST	47.0N 85.5W		48 LO	250 N N		
153	0AP	USA-MI	STR. MACKINAC, STE. MARIE	46.0N 85.8W		38 LO	250 N N		
153	0AQ	CANADA-O	MAINTOULIN I. COCKBURN I	46.0N 83.8W		38 LO	250 N N		
153	0AR	CANADA-O	MAINTOULIN I. NORTH CY.	46.5N 82.8W		35 LO	250 N Y		
153	0AS	CANADA-O	BUDBURY, LAKE COUNTRY	46.5N 81.5W		48 LO	250 N N		
153	0AT	SWITZERLAND	BERNER ALPS, BERN	46.5N 8.0E		48 LO	98 N N		
153	0AD	SWITZERLAND	BERNER ALPS	46.5N 9.0E		50 LO	98 N N		
153	0AV	SWITZERLAND	BERNER ALPS, BERN	47.0N 8.0E		68 LO	98 N N		
153	1	USA-CA	PANORAMA-CENTRAL CALIF.	37.8N 118.5W 41.0N 114.2W		58 HO	98 N N 890811 14:42:00 171	88 21 50	
153	2	USA-CA	PANORAMA-CENTRAL CALIF.	38.5N 120.0W 41.2N 113.5W		58 HO	98 N N 890811 14:42:05 161	88 21 50	
153	3	USA-UT	GREAT SALT LAKE/DESERT	40.5N 113.5W 42.5N 112.2W		85 LO	98 N N 890811 14:42:33 161	90 23 50	
153	4	USA-WY	BEAR LAKE/UT.	41.5N 111.0W 44.2N 109.8W		98 HO	98 N N 890811 14:43:11 161	92 25 50	
153	5	USA-WY	BEAR LAKE/UT.	42.5N 110.5W 44.0N 108.6W		98 HO	98 N N 890811 14:43:29 161	94 25 50	
153	6	USA-ID	BEAR LAKE/UT. SHOSHONE I.	44.0N 111.5W 45.1N 108.3W		70 HO	98 N N 890811 14:43:34 161	94 26 50	
153	7	USA-SO	MO. R. LOAHE, GR. PLAINS	43.5N 100.5W 48.0N 101.3W		78 HO	98 N N 890811 14:45:00 161	102 30 50	
153	8	USA-ND	PENNING R. FED R. PLAINS	48.5N 99.0W 50.8N 97.1W		58 HO	98 N N 890811 14:46:00 161	107 32 50	
153	9	USA-MI	L. SUPERIOR, PANORAMA	45.5N 87.5W 54.0N 87.1W		88 HO	98 N N 890811 14:47:43 161	119 37 50	
153	10	PORTUGAL	LIBSON, COAST, FRONT	40.5N 9.5W 38.6N 5.7W		58 HO	98 N N 890811 15:02:00 163	245 49 50	
153	11	PORTUGAL	LIBSON, COAST, FRONT	38.5N 9.8W 38.5N 4.6W		48 HO	98 N N 890811 15:02:23 163	248 48 50	
153	12	SPAIN	CADIZ, ROTA, STR. GBR.	37.0N 7.6W 36.9N 2.6W		48 HO	98 N N 890811 15:02:57 164	251 47 50	
153	13	SPAIN	STR. GBR. TANGIER, GBR.	36.0N 6.8W 36.5N 2.2W		38 HO	98 N N 890811 15:03:05 164	252 47 50	
153	14	SPAIN	STR. GBR. OCEAN FRONT	36.0N 6.5W 36.5N 2.8W		38 HO	98 N N 890811 15:03:09 164	252 47 50	
153	15	SPAIN	ALBORAN SEA, OCEAN FRONT	36.5N 5.5W 34.8N 9.6W		38 HO	98 N N 890811 15:03:40 164	255 46 50	
153	16	SPAIN	ALBORAN SEA, OCEAN FRONT	37.0N 2.5W 34.5N 8.2W		28 HO	98 N N 890811 15:03:45 164	254 46 50	
153	17	SPAIN	ALBORAN SEA, OCEAN FRONT	37.5N 3.5W 33.0N 8.4E		28 HO	98 N N 890811 15:03:57 164	257 45 50	
153	18	NIGERIA	LAKE CHAD, MANGA REGION	13.5N 13.5E 11.9N 16.8E		78 HO	98 N N 890811 15:10:50 165	281 29 50	
153	19	NIGERIA	LAKE CHAD, MANGA REGION	13.5N 13.5E 11.0N 17.1E		88 HO	98 N N 890811 15:11:06 165	281 28 50	
153	20	CANADA-O	L. WINNIPEG	52.5N 94.5W 53.2N 100.4W		88 HO	98 N N 890811 15:27:44 162	196 51 53	
153	21	CANADA-O	THUNDER BAY, BACK BAY	49.0N 90.0W 47.7N 86.7W		78 HO	98 U N 890811 15:30:28 163	221 52 53	
153	22	USA-WI	LNI, EDDIES, INT. WAVES	44.0N 88.0W 46.4N 84.4W		75 HO	98 N N 890811 15:30:59 163	225 52 53	
153	23	USA-MI	STR. MACKINAC, BEAVER I.	46.5N 86.5W 45.5N 82.8W		78 HO	98 U N 890811 15:31:22 163	228 51 53	
153	24	USA-MI	STR. MACKINAC, SAGINAW BAY	45.0N 85.0W 44.7N 81.5W		68 HO	98 U N 890811 15:31:41 163	230 51 53	
153	25	USA-MI	ST. CLAIR R. SAGINAW BAY	44.5N 84.5W 43.8N 82.3W		78 HO	98 U N 890811 15:32:00 163	233 51 53	
153	26	USA-MI	ST. CLAIR R. SAGINAW BAY	44.0N 86.0W 42.6N 78.4W		88 HO	98 U N 890811 15:32:23 163	237 50 53	
153	27	USA-AK	ALASKA PEN. PANORAMA	54.5N 163.5W 56.9N 159.8W		90 HO	98 N N 890811 22:52:49 161	142 43 54	
153	28	USA-AK	BARANOF I. CHATJAM STR.	55.5N 132.5W 56.5N 140.8W		68 HO	98 N N 890811 22:53:02 161	144 48 54	
153	29	USA-WA	COLUMBIA R. VALLEY, AGR.	47.5N 120.5W 54.3N 127.4W		58 HO	98 N N 890811 22:57:56 162	189 51 54	
153	30	USA-MT	L. EWEEL, MELK R. AGR.	48.5N 114.0W 50.2N 115.1W		75 HO	98 N N 890811 22:59:56 162	210 52 54	
153	31		BLANK	39.8S 39.1W		LO	98 N N 890811 21:20:55 163	275 19 54	
153	32	ATMOSPHERIC LNB	TERMINATOR-CENTER BLOCK	49.8S 37.7W		HO	98 N N 890811 21:23:18 165	273 20 54	
153	33	TAIWAN	FOG, COAST CHINA	23.0N 121.0E 33.0N 122.3E		68 HO	250 N N 890811 22:11:57 161	78 11 55	
153	34	JAPAN	FRONT, CONV. STORMS	37.0N 127.3E		98 HO	250 N N 890811 22:13:31 161	83 16 55	
153	35	NORTH KOREA	COAST	38.5N 128.0E 41.1N 131.1E		88 LO	250 N N 890811 22:14:38 161	87 20 55	
153	36	NORTH KOREA	COAST	38.5N 127.5E 41.2N 131.2E		88 LO	250 N N 890811 22:14:48 161	87 20 55	
153	37	NORTH KOREA	COAST	39.5N 127.0E 41.3N 131.4E		75 LO	250 N N 890811 22:14:43 161	87 20 55	
153	38	USSR-PACIFIC	INLAND BASIN	45.0N 134.6E		85 LO	250 N N 890811 22:16:06 161	83 28 55	
153	39	USSR-PACIFIC	SIKHOTE MTNS, VALLEY FOG	48.0N 137.0E 48.4N 142.0E		88 LO	250 N N 890811 22:17:31 161	93 28 55	
153	40	USSR-PACIFIC	SIKHOTE MTNS, VALLEY FOG	49.5N 138.5E 48.7N 143.4E		68 LO	250 N N 890811 22:17:39 161	100 28 55	
153	41	USSR-PACIFIC	SIKHOTE MTNS, VALLEY FOG	49.0N 138.0E 49.4N 144.7E		78 LO	250 N N 890811 22:17:54 161	101 29 55	
153	42	USSR-PACIFIC	SOUTH SAKHALIN I.	47.5N 141.5E 50.1N 146.3E		78 LO	250 N N 890811 22:18:15 161	103 30 55	
153	43	USSR-PACIFIC	SOUTH SAKHALIN I.	49.0N 142.0E 50.2N 146.5E		78 LO	250 N N 890811 22:18:18 161	103 31 55	
153	44	USSR-PACIFIC	MID SAKHALIN I. VALFOG	49.5N 141.5E 50.2N 146.7E		78 LO	250 N N 890811 22:18:20 161	104 31 55	
153	45	USSR-PACIFIC	MID SAKHALIN I. VALFOG	50.5N 141.5E 50.3N 147.0E		70 LO	250 N N 890811 22:18:23 161	104 31 55	

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL	OR
153	46	USSR-PACIFIC	MID SAKHALIN I.	50.0N 142.5E	50.6N 147.6E	70	LO	250	N	N	890811	22:18:30	161 105 31	55
153	47	USSR-PACIFIC	MID SAKHALIN I. VAL. FOG	50.5N 142.5E	50.7N 147.8E	65	LO	250	N	N	890811	22:18:33	161 105 31	55
153	48	USSR-PACIFIC	MID SAKHALIN I. VAL. FOG	51.0N 143.1E	50.8N 148.1E	60	LO	250	N	N	890811	22:18:36	161 105 31	55
153	49	USSR-PACIFIC	MID SAKHALIN I. VAL. FOG	51.5N 143.8E	50.9N 148.4E	50	LO	250	N	N	890811	22:18:40	161 106 32	55
153	50	USSR-PACIFIC	NORTH SAKHALIN I.	52.5N 142.5E	51.8N 150.7E	70	LO	250	N	N	890811	22:19:06	161 106 33	55
153	51	USSR-PACIFIC	NORTH SAKHALIN I.	53.0N 142.5E	51.9N 151.0E	80	LO	250	N	N	890811	22:19:09	161 106 33	55
153	52	USSR-PACIFIC	KAMCHATKA PEN. SREDIN MT	57.5N 160.5E	54.6N 160.5E	15	LO	250	N	N	890811	22:20:10	161 126 37	55
153	53	USSR-PACIFIC	KAMCHATKA PEN. SREDIN MT	58.5N 161.0E	54.7N 160.8E	40	HO	250	N	N	890811	22:20:51	161 126 37	55
153	54	USSR-PACIFIC	KAMCHATKA PEN. SREDIN MT	63.0N 167.0E	54.8N 161.2E	60	HO	250	N	N	890811	22:20:55	161 121 37	55
153	55	USSR-PACIFIC	ILPINSKIY PEN. PUSTAYA R.	62.0N 166.0E	54.9N 161.8E	70	HO	250	N	N	890811	22:21:01	161 122 38	55
153	56	USSR-PACIFIC	KAMCHATKA PEN. TAYGONOS P	61.5N 162.0E	55.1N 162.0E	60	HO	250	N	N	890811	22:21:11	161 123 38	55
153	57	USSR-PACIFIC	ILPINSKIY PEN. PUSTAYA R.	61.5N 165.0E	55.2N 163.2E	70	HO	250	N	N	890811	22:21:14	161 123 38	55
153	58	USSR-PACIFIC	KAMCHATKA PEN. SREDIN MT	58.5N 161.5E	55.3N 163.9E	15	LO	250	N	N	890811	22:21:21	161 124 39	55
153	59	CHINA	XAS MORON R. LAOHA R.	42.5N 120.8E	42.4N 121.0E	40	LO	90	N	N	890812	06:06:09	163 234 52	60
153	60	CHINA	XAS MORON R. LAOHA R.	42.0N 120.8E	42.1N 121.4E	50	LO	90	N	N	890812	06:06:15	163 235 52	60
153	61	JAPAN	KYUSHU, HONSHU, SETO SEA	34.0N 130.5E	34.2N 130.3E	40	NV	90	N	N	890812	06:08:58	164 253 48	60
153	62	JAPAN	SHOKOKU, HONSHU, SETO SEA	34.0N 132.0E	33.4N 131.8E	40	NV	90	N	N	890812	06:09:15	164 255 48	60
153	63	SPAIN	RIO DUERO BASIN	40.5N 4.5W	43.1N 4.1W	10	LO	90	N	N	890812	07:18:27	160 88 20	61
153	64	FRANCE	G. LION, RHONE VALLEY	45.0N 3.0E	47.0N 2.2E	60	LO	90	N	N	890812	07:19:59	160 95 25	61
153	65	FRANCE	ALPS MED. CST. RHONE VAL.	46.0N 5.0E	47.5N 3.0E	60	LO	90	N	N	890812	07:20:10	160 96 25	61
153	66	FRANCE	ALPS, PO BASIN, RHONE VAL.	47.0N 7.0E	48.4N 4.7E	60	LO	90	N	N	890812	07:20:33	160 97 27	61
153	67	CHINA	GOMI DESERT, FAERHKKU MTH	43.5N 93.5E	44.9N 94.2E	25	LO	90	N	N	890812	07:35:42	163 226 53	61
153	68	CHINA	GOMI DESERT, FAERHKKU MTH	43.0N 97.5E	43.1N 97.1E	20	NV	90	N	N	890812	07:36:24	163 232 52	61
153	69	CHINA	YANGTZE R. LAKE AREA	29.5N 112.0E	29.3N 111.7E	70	NV	90	N	N	890812	07:41:06	164 261 46	61
153	70	CHINA	COAST, CHEN-MEN	25.0N 118.0E	24.0N 115.8E	60	LO	90	N	N	890812	07:42:47	165 269 42	61
153	71	CHINA	COAST	26.0N 116.5E	23.2N 116.4E	60	NV	90	N	N	890812	07:43:02	165 270 41	61
153	72	PHILIPPINES	LUZON, NORTH END, FUGA I	18.5N 120.5E	17.1N 120.5E	40	NV	90	N	N	890812	07:44:54	165 276 37	61
153	73	AUSTRALIA-NT	ARKHEM LAND, FIRES	11.5S 135.0E	9.8S 135.8E	20	HO	90	N	N	890812	07:52:44	166 288 14	61
153	74	USSR-MIDDLE	ARAL SEA, TURGAY R.	47.5N 62.0E	50.2N 61.1E	20	LO	90	N	N	890812	09:03:56	162 206 53	62
153	74 A	USSR-MIDDLE	SYRDARYA R. BASIN, DES.	45.0N 68.0E		10	LO	90	N	N				
153	74 B	CHINA	YANGTZE R. LAKE AREA	31.2N 113.0E		90	LO	90	N	N				
153	74 C	INDONESIA	BANGKA I./STR. SUMATRA	1.0S 106.5E		80	LO	90	N	N				
153	74 D	OCEAN	OCEAN EDDY, SUNGLINT			40	LO	90	N	N				
153	74 E	OCEAN	CONVERGING CLOUD FRONTS			90	HO	90	N	N				
153	74 F	BRITAIN	ISLE OF MAN, IRISH SEA	55.0N 4.0W		35	LO	90	N	N				
153	74 G	BRITAIN	IRISH SEA, MID ENGLAND	54.0N 1.5W		35	LO	90	N	N				
153	74 H	DENMARK	NO. TIP, LAESO I.	57.5N 9.5E		80	HO	90	N	N				
153	74 I	ROMANIA	BLACK SEA, DANUBE R.	44.0N 28.0E		60	LO	90	N	N				
153	74 K	TURKEY	MARMARA SEA, BOSPORUS	41.5N 28.5E		50	LO	90	N	N				
153	74 L	TURKEY	MARMARA SEA, BOSPORUS	41.5N 27.5E		50	LO	90	N	N				
153	74 M	TURKEY	COAST, CLOUD EDDY	42.5N 33.5E		50	LO	90	N	N				
153	74 N	TURKEY	KORUGLU MTHS. I. AKSEMR	40.0N 31.5E		50	LO	90	N	N				
153	74 P	TURKEY	ISKENDERUN GULF, ASSAD RE	36.5N 36.5E		25	LO	90	N	N				
153	74 Q	LEBANON	MED CST. HOMS RES.	34.5N 34.0E		20	LO	90	N	N				
153	74 R	SAUDI ARABIA	NAFUD AL MAZHUR, BERG.	28.0N 43.0E		15	LO	90	N	N				
153	74 S	CLOUDS	STORMS, CONV. CELLS			90	LO	90	N	N				
153	74 T	CANADA-S	L. DUFFENBAKER, GR. PLAINS	49.5N 108.5W		70	HO	90	N	N				
153	74 U	USA-MT	GREAT PLAINS, AGR.	48.0N 108.5W		70	LO	90	N	N				
153	74 V	USA-WI	GR. LAKES PANORAMA, SGLT	45.0N 89.0W		50	HO	90	N	N				
153	74 W	USA-WI	GR. LAKES PANORAMA, HAZE	44.0N 84.5W		35	HO	90	N	N				
153	74 Y	CANADA-O	JAMES BAY, HOTTAWAY R.	51.0N 79.0W		2	LO	90	N	N				
153	75	USA-OR	OR/NCA, PANORAMA, CLEAR	42.0N 126.0W	43.8N 117.9W	30	HO	90	N	N	890812	14:51:16	160 88 20	66
153	76	USA-ID	AGR. SPOKANE R. SPOKANE	48.0N 118.0W	44.4N 117.1W	35	HO	90	N	N	890812	14:51:29	160 89 21	66
153	77	USA-MT	AGR. SPOKANE, FLATHEAD R	49.0N 118.0W	44.5N 117.0W	30	HO	90	N	N	890812	14:51:31	160 89 21	66
153	78	USA-MT	MO R. GR. PLAINS, AGR.	47.5N 111.5W	44.7N 116.7W	30	HO	90	N	N	890812	14:51:35	160 89 21	66
153	79	USA-OR	SHAKE R. WALLOWA MTHS.	44.5N 119.0W		50	HO	90	N	N				
153	80	USA-MT	MO R. MARIUS R. LEWELL	48.0N 114.0W		30	HO	90	N	N				
153	81	CANADA-S	L. DUFFENBAKER, GR. PLAINS	51.0N 106.0W		35	HO	90	N	N				
153	82	SPAIN	LISBON, COAST, PANORAMA	38.0N 7.0W		70	HO	90	N	N				
153	83	SPAIN	STR. OF GIBRALTAR	39.0N 7.0W		60	HO	90	N	N				
153	84	SPAIN	STR. OF GIBRALTAR	37.0N 5.5W		60	HO	90	N	N				
153	85	USA-AK	ANDREANOF IS. CLOUD WAKES	52.0N 171.0W		35	LO	90	N	Y				
153	86	USA-AK	ANDREANOF IS. CLOUD WAKES	52.0N 171.5W		35	LO	90	N	Y				
153	87	USA-AK	ANDREANOF IS. CLOUD WAKES	52.0N 169.5W		35	LO	90	N	N				
153	88	USA-AK	COPPER R. WRANGELL MTHS	61.0N 141.0W		35	HO	90	N	N				
153	89	USA-AK	COPPER R. WRANGELL MTHS	60.5N 141.0W		35	HO	90	N	N				
153	90	USA-AK	KENAI MTHS. COAST	59.5N 140.0W		30	LO	90	N	N				
153	91	USA-AK	CHUGACH MTHS. COAST	59.5N 147.0W		30	LO	90	N	N				
153	92	USA-AK	CHUGACH MTHS. COPPER R.	59.5N 146.0W		30	LO	90	N	N				
153	94	USA-AK	MALASPINA GLYAKUTAT BAY	59.5N 140.5W		40	LO	90	N	N				

**TABLE 4-3.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY ROLL AND FRAME (Concluded)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
153	95	CANADA-O	L. ERIE, HURON, PANOR.	42.5N 89.5W		85 HO	90 N H			
153	96	USA-IN	L. MI. CHICAGO AREA	41.5N 87.0W		90 LO	90 N N			
153	97	USA-IL	L. MI. CHICAGO AREA	41.0N 88.0W		90 LO	90 N N			
153	98	USA-IN	L. MI. CHICAGO AREA	41.0N 86.0W		90 HO	90 N H			
153	99	USA-IN	L. MI. CHICAGO AREA	41.0N 86.0W		85 LO	90 N H			
153	100	USA-OH	L. ERIE, PANORAMA, AGR.	41.0N 83.5W		90 HO	90 N N			
153	101	USA-OH	L. ERIE, PANORAMA, AGR.	40.5N 82.5W		85 HO	90 N H			
153	102	USA-KY	OHIO R. CINCINNATI	38.5N 84.5W		90 HO	90 N H			
153	103	USA-KY	OHIO R. CINCINNATI	38.5N 85.0W		90 HO	90 N H			
153	104	LAND	CLOUD FRONT, HAZE, SGLT			70 HO	90 N N			
153	105	LAND	CLOUD FRONT, HAZE, SGLT			70 HO	90 N N			
153	106	LAND	CLOUD FRONT, HAZE, SGLT			HO	90 N N			
153	107	USA-AK	COPPER R. PANORAMA	62.5N 145.0W		50 HO	90 N Y			
153	108	USA-AK	COPPER R. PANORAMA	61.5N 145.5W		50 HO	90 N Y			
153	109	USA-UT	GR. SALT LAKE, PANORAMA	41.5N 113.0W		70 HO	90 N N			
153	110	USA-UT	COL. PLAT. CANYON LANDS	37.5N 112.5W		70 HO	90 N H			
153	111	USA-TX	GULF COAST, HAZE	30.0N 94.5W		85 HO	90 N H			
153	112	MEXICO	ISTHMUS OF TEHUANTEPEC	18.5N 96.5W		75 HO	90 N N			

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
71	4		UNDEREXPOSED		51.4N 95.3W		100 U N	890808	15:51:27	161 124 43 3
71	5		UNDEREXPOSED		51.5N 94.9W		100 U N	890808	15:51:31	161 125 43 3
71	6		UNDEREXPOSED		52.0N 93.4W		100 U N	890808	15:51:18	161 127 44 3
71	7		UNDEREXPOSED		53.4N 89.8W		100 U N	890808	15:52:35	161 133 45 3
71	8		UNDEREXPOSED		53.6N 88.3W		100 U N	890808	15:52:43	151 135 45 3
72	1		EXTERNAL TANK			HO	250 N N			
72	2		EXTERNAL TANK			HO	250 N N			
72	3		EXTERNAL TANK			HO	250 N N			
72	4		EXTERNAL TANK			HO	250 N N			
72	5		EXTERNAL TANK			HO	250 N N			
72	6		EXTERNAL TANK			HO	250 N N			
72	7		EXTERNAL TANK			HO	250 N N			
72	8		EXTERNAL TANK			HO	250 N N			
72	9		EXTERNAL TANK			HO	250 N N			
72	10		EXTERNAL TANK			HO	250 N N			
72	11		EXTERNAL TANK			HO	250 N N			
72	12		DEBRIS				250 N N			
72	13		DEBRIS				250 N N			
72	14		EXTERNAL TANK			LO	250 U N			
72	15		UNDEREXPOSED				250 U N			
72	16		UNDEREXPOSED				250 U N			
72	17		UNDEREXPOSED				250 U N			
72	18		UNDEREXPOSED				250 U N			
72	19		UNDEREXPOSED				250 U N			
72	20		UNDEREXPOSED				250 U N			
72	21		UNDEREXPOSED		34.2N 94.3W		250 U N	890808	14:15:35	161 94 32 2
72	22		UNDEREXPOSED		40.0N 92.1W		250 U N	890808	14:16:14	161 97 33 2
72	23		UNDEREXPOSED		43.4N 87.7W		250 U N	890808	14:17:27	161 103 36 2
72	24		UNDEREXPOSED		34.3N 19.1E		250 U N	890808	14:37:03	163 263 36 2
72	27		UNDEREXPOSED		28.2N 22.6E		250 U N	890808	14:40:23	164 274 27 2
72	28		UNDEREXPOSED		26.1N 30.2E		250 U N	890808	14:41:03	164 276 25 2
72	29		UNDEREXPOSED		54.3N 85.7W		250 U N	890808	15:52:03	161 138 46 3
72	30		UNDEREXPOSED		54.4N 85.1W		250 U N	890808	15:53:09	161 139 46 3
72	40		DEBRIS		31.1N 147.2W		250 N N	890808	17:16:11	161 86 25 4
72	41		DEBRIS		34.8N 143.8W		250 N N	890808	17:15:24	161 90 28 4
74	25		MOON		56.9N 169.1W	HO	250 N N	890808	21:57:49	162 162 48 7
74	26		MOON		57.0N 154.7W	HO	250 N N	890808	21:58:01	162 163 48 7
74	27		MOON		57.1N 156.2W	HO	250 N N	890808	21:58:21	162 164 49 7
77	82		BLANK		21.5S 119.7W			890809	12:35:06	162 82-26 16
77	89		BLANK		22.6S 119.0W			890809	12:35:23	162 82-25 16
78	31		BLANK		31.7N 101.5W			890809	14:21:47	161 84 21 18
82	1		BLANK		1.9N 151.5W			890809	15:43:19	162 74 -4 19
83	1		BLANK							
84	1		BLANK							
89	7		SHUTTLE LIGHT-GREEN		50.6S 115.3W		50 N N	890810	09:32:08	163 140-49 38
89	31		SHUTTLE INT.SMLITES.OX		44.1N 102.7W		50 N N	890810	10:34:29	151 56 29 34
89	61		SHUTTLE CABIN-BLURRED				50 U N			
89	69		BLANK		12.0S 126.1E			890811	09:17:26	166 256 1 46
100	49		BLURRED		43.0N 5.2E	LO	250 N N	890812	13:34:08	161 210 53 65
100	92		BLURRED		49.2N 83.0W			890812	18:41:11	163 216 53 69
151	39					LO	N N			
153	31		BLANK		31.2S 39.1W	LO	99 N N	890811	21:28:55	165 275-19 54
94	49	ADRIATIC SEA	EDDIES, WIND DOWNDRAFT	43.5N 14.5E	44.8N 14.0E	5 LO	250 N N	890810	11:28:56	163 239 47 33
77	69	AFGHANISTAN	MOUNTAINS		34.1N 61.7E	10 LO	250 N N	890809	11:45:48	164 265 36 16
77	70	AFGHANISTAN	MOUNTAINS		33.7N 62.1E	20 LO	250 N N	890809	11:45:54	164 266 36 16
77	71	AFGHANISTAN	MOUNTAINS		33.2N 62.5E	20 LO	250 N N	890809	11:46:05	164 266 35 16
79	40	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 62.5E	33.7N 62.0E	0 NV	100 N Y	890809	11:45:48	164 266 36 16
79	41	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 63.0E	33.6N 62.2E	0 NV	100 N Y	890809	11:45:51	164 266 36 16
79	42	AFGHANISTAN	NORTHWESTERN MOUNTAINS	33.5N 63.0E	33.4N 62.4E	0 NV	100 N Y	890809	11:45:55	164 266 36 16
79	43	AFGHANISTAN	NORTHWESTERN MOUNTAINS	34.0N 64.0E	33.2N 62.6E	0 NV	100 N Y	890809	11:45:59	164 266 35 16
79	44	AFGHANISTAN	NORTHWESTERN MOUNTAINS	32.5N 64.0E	32.8N 62.9E	0 NV	100 N Y	890809	11:46:04	164 267 35 16
79	45	AFGHANISTAN	NORTHWESTERN MOUNTAINS	32.5N 64.5E	32.7N 63.0E	0 NV	100 N Y	890809	11:46:09	164 267 35 16
79	46	AFGHANISTAN	HELMAND RIVER	33.0N 65.5E	32.5N 63.2E	0 LO	100 N N	890809	11:46:12	164 267 35 16
79	47	AFGHANISTAN	HELMAND RIVER	33.0N 66.0E	32.3N 63.4E	5 LO	100 N N	890809	11:46:16	164 267 35 16
79	48	AFGHANISTAN	EASTERN MOUNTAINS	34.0N 68.0E	32.1N 63.5E	19 LO	100 N N	890809	11:46:20	164 268 35 16
79	49	AFGHANISTAN	MARGON DESERT	31.0N 65.5E	31.2N 64.2E	5 NV	100 N Y	890809	11:46:37	164 269 34 16
79	53	AFGHANISTAN	PAKISTAN BORDER	33.0N 68.0E	29.2N 66.1E	20 LO	100 N N	890809	11:47:17	164 271 32 16
88	35	AFGHANISTAN	HINDU KUSH	37.0N 73.5E	37.0N 73.9E	5 NV	100 N Y	890810	12:22:56	164 257 42 31
84	17	AFGHANISTAN	MOUNTAINS	33.0N 63.0E	35.0N 60.5E	5 LO	100 N N	890812	10:40:04	164 251 50 63
84	18	AFGHANISTAN	MOUNTAINS	33.5N 64.0E	34.7N 60.8E	5 LO	100 N N	890812	10:40:10	164 251 49 63

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON.	NAOIR LAT. LON.	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
84	19	AFGHANISTAN	MOUNTAINS	34.5N 67.5E	34.5N 61.0E	40 HO	100 N	N 890812	18:40:14	164 252 49 63
87	69	AFGHANISTAN	MOUNTAINS NORTH OF KABUL	36.0N 69.5E	34.5N 68.0E	10 NV	100 N	N 890811	18:32:01	164 257 45 47
87	70	AFGHANISTAN	MOUNTAINS WEST OF KABUL	35.0N 67.5E	33.8N 68.5E	5 LO	100 N	N 890811	18:32:15	164 258 45 47
87	71	AFGHANISTAN	MOUNTAINS, LAKES	33.5N 68.0E	32.2N 70.9E	10 LO	100 N	N 890811	18:32:45	164 260 44 47
91	20	AFGHANISTAN	AMU RIVER, USSR BORDER	37.5N 69.5E	34.7N 71.9E	0 LO	250 N	N 890813	09:16:19	163 234 54 78
93	41	AFGHANISTAN	PETRA PEROVOGO RANGE	38.0N 70.5E	39.7N 70.8E	0 LO	100 N	N 890810	10:21:37	163 251 43 31
93	42	AFGHANISTAN	PAMIR MTNS. PYANDZH R.	38.0N 71.0E	39.5N 71.2E	0 LO	100 N	N 890810	10:22:00	163 252 44 31
93	43	AFGHANISTAN	PAMIR MTNS. L. ZORKUL	37.0N 71.0E	37.7N 73.2E	10 NV	100 N	N 890810	10:22:37	164 255 43 31
93	46	AFGHANISTAN	PAMIR MTNS. L. ZORKUL	37.0N 73.5E	37.6N 73.3E	10 NV	100 N	N 890810	10:22:39	164 256 43 31
93	47	AFGHANISTAN	PAMIR MTNS. L. ZORKUL	37.0N 73.0E	37.5N 73.5E	10 NV	100 N	N 890810	10:22:42	164 256 43 31
151	93	AFGHANISTAN	HARI R. NORTH MTN RANGES	34.0N 61.5E	34.1N 61.7E	0 NV	90 N	N 890809	11:43:41	164 265 36 16
151	94	AFGHANISTAN	HARI R. HW MTN RANGES	33.0N 62.5E	33.3N 62.5E	0 NV	90 N	N 890809	11:43:58	164 266 35 16
151	95	AFGHANISTAN	HARI R. CENT. MTN RANGES	33.5N 63.5E	32.5N 63.2E	0 LO	90 N	N 890809	11:44:14	164 267 35 16
151	96	AFGHANISTAN	HELMAND R. MARGO DESERT	31.5N 63.5E		0 NV	90 N	N Y		
151	97	AFGHANISTAN	HELMAND R. CENT. MTN RA.	32.0N 64.5E	31.7N 63.9E	0 HV	90 N	N 890809	11:46:30	164 268 34 16
151	98	AFGHANISTAN	HELMAND R. MARGO DESERT	31.0N 63.5E		0 NV	90 N	N Y		
151	99	AFGHANISTAN	HELMAND R. MARGO DESERT	31.5N 63.5E	30.6N 64.9E	15 NV	90 N	N 890809	11:46:51	164 270 33 16
152	46	AFGHANISTAN	L. ZORKUL, HINDU KUSH	37.0N 73.5E	37.2N 73.8E	5 NV	250 N	N 890810	10:22:25	164 255 43 31
78	191	AFRICA	CLOUDS		5.0S 42.3E	94 HO	250 N	N 890809	14:59:06	171 206 3 18
78	192	AFRICA	CLOUDS		6.0S 42.3E	90 HO	250 N	N 890809	14:59:10	171 206 2 18
78	193	AFRICA	CLOUDS		6.2S 42.5E	90 HO	250 N	N 890809	14:59:14	171 206 2 18
78	194	AFRICA	CLOUDS		6.7S 42.8E	100 HO	250 N	N 890809	14:59:23	171 206 2 18
78	195	AFRICA	CLOUDS		7.4S 43.1E	100 HO	250 N	N 890809	14:59:35	171 206 1 18
78	196	AFRICA	CLOUDS, ORBITER			100 HO	250 N	N		
78	197	AFRICA	CLOUDS, ORBITER			100 HO	250 N	N		
81	48	AFRICA	CLOUDS		1.9S 44.0E	90 HO	100 N	N 890809	14:58:10	171 206 6 18
81	49	AFRICA	CLOUDS		2.5S 44.4E	90 HO	100 N	N 890809	14:58:21	171 206 6 18
83	25	AFRICA	CLOUDS		5.3N 20.4E	82 LO	100 N	N 890811	15:12:39	165 284 23 50
89	1	AFRICA	SAHARA-SANDSTORM		34.6N 3.4E	40 HO	100 N	N 890810	14:53:55	164 253 44 34
89	2	AFRICA	SAHARA-SANDSTORM		34.2N 3.7E	40 HO	100 N	N 890810	14:54:00	164 254 44 34
89	3	AFRICA	SAHARA-SANDSTORM		34.0N 3.9E	90 HO	100 N	N 890810	14:54:04	164 254 44 34
89	4	AFRICA	SAHARA-SANDSTORM		37.0N 4.0E	60 HO	100 N	N 890810	14:54:07	164 254 44 34
89	5	AFRICA	SAHARA-SANDSTORM		37.8N 4.2E	90 HO	100 N	N 890810	14:54:09	164 254 44 34
89	6	AFRICA	SAHARA-SANDSTORM		37.1N 4.9E	40 LO	100 N	N 890810	14:54:23	164 256 43 34
89	7	AFRICA	SAHARA-SANDSTORM		36.7N 5.3E	20 HO	100 N	N 890810	14:54:31	164 256 43 34
89	8	AFRICA	SAHARA-SANDSTORM		36.6N 5.5E	30 HO	100 N	N 890810	14:54:34	164 257 43 34
89	9	AFRICA	SAHARA-SANDSTORM		36.4N 5.7E	40 HO	100 N	N 890810	14:54:38	164 257 43 34
89	10	AFRICA	SAHARA-SANDSTORM		36.2N 5.9E	60 HO	100 N	N 890810	14:54:41	164 257 43 34
89	11	AFRICA	SAHARA-SANDSTORM		36.1N 6.0E	80 HO	100 N	N 890810	14:54:44	164 257 42 34
89	12	AFRICA	SAHARA-SANDSTORM		35.9N 6.1E	80 HO	100 N	N 890810	14:54:47	164 258 42 34
89	13	AFRICA	SAHARA-SANDSTORM		35.7N 6.4E	90 HO	100 N	N 890810	14:54:52	164 258 42 34
89	20	AFRICA	CLOUDS		25.8N 15.8E	50 LO	100 N	N 890810	14:58:05	163 271 35 34
89	21	AFRICA	CLOUDS		23.8N 16.5E	20 LO	100 N	N 890810	14:58:42	163 273 33 34
89	22	AFRICA	CLOUDS		23.6N 16.6E	70 LO	100 N	N 890810	14:58:46	163 274 33 34
89	23	AFRICA	CLOUDS		18.6N 23.2E	70 HO	100 N	N 890810	15:00:22	165 278 28 34
89	24	AFRICA	CLOUDS		17.2N 21.0E	70 HO	100 N	N 890810	15:00:44	165 279 28 34
96	50	ALBANIA	ADRIATIC SEA COAST	41.5N 19.5E	43.1N 20.5E	20 LO	250 N	N 890810	13:21:35	163 243 47 33
96	51	ALBANIA	ADRIATIC SEA CST. TIRANE	41.5N 19.5E	43.0N 20.6E	15 LO	250 N	N 890810	13:21:37	163 243 44 33
96	52	ALBANIA	ADRIATIC SEA COAST	40.5N 19.5E	42.9N 20.8E	20 LO	250 N	N 890810	13:21:40	163 244 46 33
78	76	ALGERIA	MEDITERRANEAN COASTLINE	37.5N 7.0E	37.9N 11.8E	5 LO	250 N	N 890809	14:45:35	167 259 40 18
78	77	ALGERIA	MEDITERRANEAN COASTLINE	37.5N 7.5E	37.5N 12.2E	5 LO	250 N	N 890809	14:45:43	167 260 39 18
97	18	ALGERIA	GRAND ERG ORIENTAL	27.5N 7.0E	34.9N 7.1E	20 HO	100 N	N 890810	14:55:07	164 259 42 34
97	19	ALGERIA	MED. COAST. BEJALA	37.0N 5.0E	37.4N 4.5E	20 LO	250 N	N 890810	14:54:05	164 255 43 34
97	11	ALGERIA	MED. COAST. SIKKFA COLLO	37.0N 6.5E	37.0N 4.9E	10 LO	250 N	N 890810	14:54:13	164 256 43 34
97	12	ALGERIA	MED. CST. SIKKFA ANNABA	37.0N 7.0E	36.7N 5.4E	0 LO	250 N	N 890810	14:54:21	164 256 43 34
151	184	ALGERIA	SANDSTORM, ERG CHECH	25.0N 0.0E		40 HO	90 N	N		
151	185	ALGERIA	SANDSTORM, ERG IABES	24.0N 1.0W		50 HO	90 N	N		
151	186	ALGERIA	SANDSTORM, ERG IABES	26.0N 2.0W		50 HO	90 N	N		
151	187	ALGERIA	SANDSTORM			50 HO	90 N	N		
151	188	ALGERIA	SANDSTORM			50 HO	90 N	N		
152	134	ALGERIA	MED COAST. WADI SEBAOU	37.5N 4.6E	37.5N 4.4E	40 NV	250 N	N 890810	14:54:04	164 255 43 34
152	135	ALGERIA	MED COAST. SIKKFA	37.0N 7.0E	37.0N 5.0E	20 LO	250 N	N 890810	14:54:17	164 256 43 34
152	136	ALGERIA	MED COAST. WADI SEBAOU	37.0N 4.0E	36.5N 5.5E	40 LO	250 N	N 890810	14:54:27	164 257 43 34
152	137	ALGERIA	CHOTT HOONA, TELL ATLAS	35.5N 5.0E	36.1N 6.0E	35 NV	250 N	N 890810	14:54:34	164 257 42 34
152	141	ALGERIA	GR. ERG OR. GHUDAMISI	30.5N 9.0E	30.6N 11.1E	0 LO	250 N	N 890810	14:54:24	164 246 39 34
88	38	ANDORRA	SPAIN, FRANCE	42.5N 1.5E	42.0N 2.0E	10 NV	250 N	N 890811	07:39:42	161 90 23 45
77	35	ASIA	CLOUDS		19.9N 95.9E	90	250 N	N 890809	10:19:47	165 279 24 15
77	36	ASIA	CLOUDS		19.5N 96.2E	90	250 N	N 890809	10:19:54	165 279 24 15
77	37	ASIA	CLOUDS		18.4N 96.9E	90	250 N	N 890809	10:20:14	165 280 23 15
77	38	ASIA	CLOUDS		13.5N 100.0E	100 HO	250 N	N 890809	10:21:43	165 282 19 15

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E & DATE	GMT	SUN AL AZ EL OR
77	78	ASIA	CLOUDS		22.8N 71.5E	90	HO	250	N N 890809 11:49:39	165	277 26 16
88	82	ASIA	MONGOLIA, CHINA		41.8N 102.2E	5		250	N N 890811 07:27:26	163	234 50 45
88	83	ASIA	MONGOLIA, CHINA		42.1N 106.8E	28		250	N N 890811 07:28:26	163	241 48 45
76	12	ATLANTIC OCEAN	CLOUDS		35.7N 78.8W	90		250	N N 890809 20:39:59	164	265 35 6
76	13	ATLANTIC OCEAN	CLOUDS		35.8N 69.4W	78	HO	250	N N 890809 20:40:12	164	264 34 6
76	14	ATLANTIC OCEAN	CLOUDS		33.5N 67.8W	78	HO	250	N N 890809 20:40:42	164	264 33 6
76	87	ATLANTIC OCEAN	CLOUDS		52.4N 8.3W	90	LO	250	N N 890809 09:58:12	161	124 42 15
76	98	ATLANTIC OCEAN	CLOUDS		53.4N 4.8W	80	LO	250	N N 890809 09:58:49	161	129 43 15
76	99	ATLANTIC OCEAN	CLOUDS		53.6N 4.8W	80	LO	250	N N 890809 09:58:57	161	130 43 15
77	51	ATLANTIC OCEAN	CLOUDS		43.5N 49.3W	68	LO	250	N N 890809 11:21:49	161	90 33 16
77	52	ATLANTIC OCEAN	OCEAN FEATURES		41.2N 48.2W	48	LO	250	N N 890809 11:25:07	161	101 34 16
79	1	ATLANTIC OCEAN	SUNGLINT		38.5N 63.6W	78	LO	100	N N 890809 11:28:13	161	83 21 16
79	2	ATLANTIC OCEAN	SUNGLINT		39.2N 54.8W	58	LO	100	N N 890809 11:23:09	161	83 29 16
79	3	ATLANTIC OCEAN	SUNGLINT		49.1N 53.8W	38	LO	100	N N 890809 11:23:28	161	94 30 16
79	4	ATLANTIC OCEAN	SUNGLINT		41.2N 52.4W	68	HO	100	N N 890809 11:23:52	161	96 31 16
79	5	ATLANTIC OCEAN	SUNGLINT		41.5N 52.8W	68	HO	100	N N 890809 11:23:59	161	96 51 16
79	94	ATLANTIC OCEAN	CLOUDS		53.7N 49.7W	100	HO	100	N N 890809 12:59:56	162	129 43 17
80	50 A	ATLANTIC OCEAN	CLOUDS			50		100	N N		
80	51	ATLANTIC OCEAN	SUNGLINT		48.4N 46.6W	68		100	N N 890810 11:35:54	161	106 35 32
80	52	ATLANTIC OCEAN	SUNGLINT		50.2N 43.3W	38		100	N N 890810 11:36:34	161	112 37 32
81	69	ATLANTIC OCEAN	CLOUDS		36.8N 47.0W	80	HO	100	N N 890809 19:29:59	164	272 32 21
81	70	ATLANTIC OCEAN	CLOUDS		26.4N 46.7W	86	HO	100	N N 890809 19:21:06	164	273 31 21
81	71	ATLANTIC OCEAN	CLOUDS		19.8N 41.8W	78	HO	100	N N 890809 19:23:12	165	278 26 21
81	72	ATLANTIC OCEAN	CLOUDS		18.8N 41.3W	78	HO	100	N N 890809 19:23:29	165	278 25 21
81	73	ATLANTIC OCEAN	CLOUDS		18.5N 41.8W	78	HO	100	N N 890809 19:23:36	165	278 25 21
83	29	ATLANTIC OCEAN	CLOUDS		58.2N 47.7W	38	LO	100	N N 890811 16:27:49	162	299 52 51
83	49	ATLANTIC OCEAN	CLOUDS		32.7N 67.4W	80	LO	100	N N 890811 19:35:45	164	258 45 53
83	50	ATLANTIC OCEAN	CLOUDS		38.6N 65.5W	78	LO	100	N N 890811 19:36:26	164	261 44 53
83	51	ATLANTIC OCEAN	CLOUDS		29.7N 64.8W	78	LO	100	N N 890811 19:36:42	164	263 44 53
83	52	ATLANTIC OCEAN	CLOUDS		29.8N 64.2W	78	LO	100	N N 890811 19:36:57	164	264 43 53
83	53	ATLANTIC OCEAN	CLOUDS		28.1N 63.4W	80	LO	100	N N 890811 19:37:14	164	265 42 53
83	54	ATLANTIC OCEAN	CLOUDS		15.3N 54.5W	78	LO	100	N N 890811 19:41:12	165	278 33 53
88	101	ATLANTIC OCEAN	CLOUDS		39.6N 23.9W	90	HO	250	N N 890811 08:39:23	161	87 21 46
88	102	ATLANTIC OCEAN	CLOUDS		25.5N 68.1W	90	LO	250	N N 890811 18:05:14	161	76 6 47
89	95	ATLANTIC OCEAN	CLOUDS		13.3N 45.5W	90	HO	100	N N 890810 19:33:30	165	281 26 37
89	96	ATLANTIC OCEAN	CLOUDS		11.4N 44.4W	90	HO	100	N N 890810 19:34:04	165	282 24 37
89	97	ATLANTIC OCEAN	CLOUDS		9.4N 43.2W	90	HO	100	N N 890810 19:34:49	165	283 22 37
97	47	ATLANTIC OCEAN	INTERNAL WAVES		45.7N 52.4W	28	LO	250	N N 890810 17:52:06	163	235 42 36
97	48	ATLANTIC OCEAN	OCEAN FRONT		45.6N 52.3W	48	LO	250	N N 890810 17:52:09	163	235 42 36
97	49	ATLANTIC OCEAN	OCEAN FRONT		45.4N 52.8W	48	LO	250	N N 890810 17:52:12	163	236 42 36
152	58	ATLANTIC OCEAN	CLOUDS		48.7N 48.5W	78	HO	250	N N 890810 11:35:22	161	106 34 32
152	123	ATLANTIC OCEAN	INT. WAVES, CONTRAIL		47.6N 9.9W	58	LO	250	N N 890810 14:58:18	163	239 49 34
152	157	ATLANTIC OCEAN	CONTRAILS, INT. WAVES		47.8N 54.8W	38	LO	250	N N 890810 17:51:36	163	231 49 34
75	62	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		15.5N 109.2E	HO		250	N N 890811 22:05:06	161	73 4 53
75	1	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.15 51.6W	HO		100	N N 890808 22:29:53	165	278 20 7
75	2	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.25 58.9W	HO		100	N N 890808 22:29:56	165	278 20 7
75	3	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		27.45 52.8W	HO		100	N N 890808 22:29:59	165	278 21 7
75	4	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.05 50.3W	HO		100	N N 890808 22:30:11	165	277 21 7
75	5	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.15 50.2W	HO		100	N N 890808 22:30:13	165	277 21 7
75	6	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		28.35 50.1W	HO		100	N N 890808 22:30:15	165	277 21 7
77	90	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		18.15 117.4W	HO		250	N N 890809 12:34:00	162	80 23 16
77	91	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		14.75 115.2W	HO		250	N N 890809 12:37:10	162	78 20 16
77	92	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		13.75 116.6W	HO		250	N N 890809 12:37:28	162	78 18 16
77	93	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		12.55 113.0W	HO		250	N N 890809 12:37:51	162	77 18 16
77	94	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		12.15 113.6W	HO		250	N N 890809 12:37:54	162	77 18 16
77	95	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		11.35 113.1W	HO		250	N N 890809 12:38:12	162	77 17 16
89	79	ATMOSPHERIC LIMB	ATMOSPHERIC LIMB		4.35 151.3E	HO		100	N N 890810 18:50:57	162	75 18 36
89	80	ATMOSPHERIC LIMB	SUNRISE		3.45 151.8E	HO		100	N N 890810 18:51:13	162	75 17 36
100	42	ATMOSPHERIC LIMB	MOON, SYRIA/IRAQ, DESERT		42.6N 31.8E	5	HO	250	N N 890812 12:08:31	163	257 52 44
151	190	ATMOSPHERIC LIMB	TERMINATOR		31.8S 37.1E	HO		90	N N 890809 18:37:49	171	276 21 19
151	191	ATMOSPHERIC LIMB	TERMINATOR		32.8S 38.0E	HO		90	N N 890809 18:38:09	171	275 22 19
151	233	ATMOSPHERIC LIMB	TERMINATOR			HO		90	U N		
153	32	ATMOSPHERIC LIMB	TERMINATOR-CENTER BLOCK		48.9S 37.7W	HO		90	N N 890811 21:29:19	165	273 20 54
84	0 A	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 134.5E		78	HO	100	N N		
84	0 B	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 135.0E		78	HO	100	N N		
84	0 C	AUSTRALIA-NT	ARNHEM LAND-FIRES, SMOKE	14.0S 135.0E		78	HO	100	N N		
84	0 D	AUSTRALIA-NT	GULF OF CARPENTARIA	15.0S 136.5E		19	HO	100	N N		
100	22	AUSTRALIA-NT	ARNHEM LAND, FIRES	12.0S 134.0E	8.3S 135.4E	0	LO	250	N N 890812 07:52:12	164	288 15 61
100	23	AUSTRALIA-NT	BLUE MUD BAY, FIRES	13.0S 136.0E	8.7S 136.3E	19	LO	250	N N 890812 07:52:37	164	288 13 61
100	24	AUSTRALIA-NT	GREGORY RA, YAPPAR R.	18.5S 142.5E	16.6S 140.5E	0	LO	250	U N 890812 07:54:43	164	288 7 61

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

SL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
100	25	AUSTRALIA-NT	GEORGINA R. FOLDED MTHS.	23.05 139.5E	17.15 140.8E	0 LO	250 U N	890812 07:54:51	164 288 6	61
153	73	AUSTRALIA-NT	ARNHEM LAND, FIRES	11.55 135.0E	9.85 135.9E	20 HO	90 N N	890812 07:52:44	164 288 14	61
84	0 E	AUSTRALIA-Q	GULF OF CARPENTARIA	17.05 139.5E		5 HO	100 N N			
84	0 F	AUSTRALIA-Q	GULF OF CARPENTARIA	17.55 140.0E		5 HO	100 N N			
84	0 G	AUSTRALIA-Q	GULF OF CARPENTARIA	17.55 140.8E		0 LO	100 N N			
84	0 H	AUSTRALIA-Q	DIAMANTINA RIVER	22.05 142.0E		0 NV	100 N N			
91	25	AUSTRALIA-WA	GEOGRAPHIE CHANNEL	24.55 113.5E	21.45 113.1E	0 LO	250 N N	890813 09:34:51	165 289 8	78
91	26	AUSTRALIA-WA	GASCOYNE RIVER, CARNARVON	25.05 114.05	22.35 113.7E	0 LO	250 N N	890813 09:35:08	165 289 7	78
91	27	AUSTRALIA-WA	NATURALISTE CHANNEL	25.55 113.0E	23.05 114.2E	30 LO	250 N N	890813 09:35:20	165 289 6	78
92	1	AUSTRALIA-WA	SHARK BAY	25.05 113.5E	20.55 112.4E	40 HO	100 O N	890813 09:34:30	165 289 9	78
88	45	AUSTRIA	ALPS	47.5N 13.5E	47.2N 10.2E	40 LO	250 N N	890811 07:11:44	161 100 20	45
88	46	AUSTRIA	ALPS	47.5N 14.0E	47.4N 10.5E	40 LO	250 N N	890811 07:11:49	161 100 20	45
88	48	AUSTRIA	ALPS	47.5N 13.5E	49.2N 14.2E	20 LO	250 N N	890811 07:12:37	161 104 32	45
88	49	AUSTRIA	ALPS	47.5N 16.0E	49.3N 14.5E	20 LO	250 N N	890811 07:12:40	161 104 32	45
152	195	AUSTRIA	SALZBURG, MT. MITTENDORF	47.5N 13.5E	48.6N 12.9E	40 LO	250 N Y	890811 07:12:06	161 102 31	45
152	196	AUSTRIA	SALZBURG, MT. MITTENDORF	47.5N 14.0E		40 LO	250 N Y			
88	43	BAHAMAS	ELEUTHERA ISLAND	25.5N 74.5W	24.7N 76.0W	40 NV	100 O N	890810 11:27:09	161 78 10	32
88	44	BAHAMAS	ANDROS ISLAND	24.5N 78.0W	25.4N 75.4W	50 LO	100 O N	890810 11:27:23	161 78 11	32
88	45	BAHAMAS	GREAT ABACO ISLAND	26.5N 77.5W	26.3N 74.7W	60 LO	100 O N	890810 11:27:43	161 78 12	32
93	68	BAHAMAS	LONG LIRUM CAY, GREGUMA	23.5N 75.5W	25.3N 75.7W	50 LO	100 N N	890810 11:27:12	161 78 13	32
93	69	BAHAMAS	LONG LIRUM CAY, CROOKED I	23.0N 74.5W	25.3N 75.5W	50 LO	100 N N	890810 11:27:16	161 78 11	32
99	57	BAHAMAS	SOUTH AREA, CAICOS IS.	23.0N 74.5W	25.0N 76.3W	50 HO	50 N N	890810 21:00:17	165 272 34	38
152	132	BALEARIC ISLANDS	IBIZA ISLAND	39.5N 1.0E	40.0N 1.6E	35 NV	250 N N	890810 14:53:15	163 256 45	34
152	133	BALEARIC ISLANDS	MAJORCA ISLAND	39.5N 2.5E	39.2N 2.4E	60 NV	250 N N	890810 14:53:28	164 251 45	34
75	90	BANGLADESH	GANGES RIVER	24.5N 91.0E	25.8N 91.7E	70 NV	100 N Y	890809 10:18:04	165 274 29	15
75	91	BANGLADESH	GANGES RIVER	24.0N 90.5E	25.6N 91.9E	90 NV	100 N Y	890809 10:18:08	165 275 29	15
75	92	BANGLADESH	GANGES RIVER	23.5N 90.0E	25.4N 92.0E	90 LO	100 N N	890809 10:18:12	165 275 29	15
75	93	BANGLADESH	GANGES RIVER	25.0N 91.5E	24.9N 92.4E	90 NV	100 N Y	890809 10:18:20	165 275 28	15
75	94	BANGLADESH	GANGES RIVER	25.0N 92.0E	24.8N 92.5E	90 NV	100 N Y	890809 10:18:23	165 275 28	15
93	65	BANGLADESH	GANGES R. BRAHMAPUTRA R.	24.0N 89.5E	22.6N 86.3E	50 LO	100 N N	890810 10:27:38	165 275 32	31
93	66	BANGLADESH	GANGES R. BRAHMAPUTRA R.	25.0N 89.0E	21.9N 86.8E	60 LO	100 N N	890810 10:27:44	165 276 31	31
93	67	BANGLADESH	GANGES R. DELTA	21.0N 89.5E	17.9N 89.5E	70 LO	100 N N	890810 10:28:57	165 279 28	31
151	57	BANGLADESH	BRAHMAPUTRA R. MEGHNA R.	24.5N 91.5E	27.0N 90.8E	80 HO	90 N N	890809 10:17:25	165 273 30	15
77	87	BAY OF BENGAL	CLOUDS		5.2N 91.9E	70	250 N N	890809 11:54:44	164 285 12	16
98	76	BELGIUM	WESTERSCHDELDE, TERNEUZEN	51.0N 3.5E	51.3N 3.8E	50 NV	250 N N	890810 08:35:35	161 114 37	30
98	38	BELIZE	BELIZE CITY, TURNEFFE IS.	17.5N 84.0W	18.8N 87.5W	30 NV	250 N N	890812 21:18:50	165 274 41	70
94	67	BELIZE	CHETUMAL & BAY, REEFS	17.5N 84.5W	20.5N 84.5W	70 LO	250 N N	890812 21:18:17	165 272 42	70
94	68	BELIZE	HONDURAS BAY, REEFS, CST	16.0N 89.0W	19.6N 87.9W	70 LO	250 N N	890812 21:18:33	165 273 42	70
97	34	BENIN	COTONOU, LAHOKUE, FIRES	6.5N 2.5E	7.2N 4.1E	5 LO	250 N N	890810 16:24:05	165 284 20	35
83	54	BERING SEA	COLOR VARIATION		55.1N 173.9W	5	100 N N	890811 20:50:32	161 124 38	54
98	8	BERING SEA	OCEAN EDDIES		57.1N 164.0W	60 LO	250 N N	890809 22:06:52	161 150 47	23
94	78	BOLIVIA	SALAR DE UYUNI	20.55 67.5W	21.25 63.3W	10 LO	100 O N	890812 21:30:44	165 288 5	70
90	45	BOLIVIA	ANDES MTHS. L. TITICACA	15.55 64.5W	12.65 64.0W	30 LO	250 N N	890812 21:28:16	165 289 14	70
90	46	BOLIVIA	ANDES MTHS. L. TITICACA	15.55 64.0W	12.95 62.6W	20 LO	250 N N	890812 21:28:20	165 289 13	70
90	47	BOLIVIA	ANDES MTA. R. DESAGUADERO	17.05 64.0W	14.55 67.6W	20 LO	250 N N	890812 21:28:49	165 289 12	70
90	48	BOLIVIA	LAGO POPOO	18.05 67.0W	15.25 67.2W	10 LO	250 N N	890812 21:28:03	165 289 11	70
90	49	BOLIVIA	RIO PARAPETI	20.05 63.0W	19.15 64.7W	0 NV	250 U N	890812 21:30:14	165 288 7	70
90	50	BOLIVIA	RIO GRANDE	19.05 63.5W	19.35 64.5W	0 LO	250 U N	890812 21:30:18	165 288 7	70
90	51	BOLIVIA	RIO PILCOMAYO	21.05 63.5W	19.85 64.1W	0 NV	250 U N	890812 21:30:29	165 288 7	70
94	85	BOLIVIA	RIO MADRE DE DIOS	13.05 64.5W	11.35 69.6W	15 LO	100 O N	890812 21:27:50	165 289 15	70
94	86	BOLIVIA	RIO MADRE DE DIOS, LAKES	13.55 66.0W	11.55 69.5W	0 LO	100 O N	890812 21:27:53	165 289 15	70
94	87	BOLIVIA	ALTIPLANO-PANORAMA	21.05 68.0W	12.15 69.1W	50 HO	100 O N	890812 21:28:04	165 289 14	70
94	88	BOLIVIA	CONT. DIVIDE AREA, LAKES	17.05 61.0W	14.55 67.6W	20 HO	100 O N	890812 21:28:48	165 289 12	70
94	89	BOLIVIA	L. TITICACA, ALTIPLANO	15.55 68.0W	15.75 64.8W	40 LO	100 O N	890812 21:28:09	165 289 13	70
94	90	BOLIVIA	ANDES FRONT	16.55 66.0W	16.75 66.2W	70 LO	100 O N	890812 21:28:28	165 289 10	70
71	64	BRAZIL	BAIA DE SAO MARCOS	2.05 44.5W	1.75 44.3W	20 NV	100 U N	890808 20:51:33	164 286 2	6
71	65	BRAZIL	BAIA DE SAO JOSE	2.55 43.5W	2.85 43.6W	30 NV	100 U N	890808 20:51:55	164 286 1	6
81	97	BRAZIL	AMAZON RIVER	2.05 54.5W	0.35 52.8W	60 LO	100 N N	890809 20:58:46	165 286 9	22
81	98	BRAZIL	AMAZON RIVER	2.05 53.5W	0.75 52.6W	40 LO	100 N Y	890809 20:58:53	165 286 8	22
81	99	BRAZIL	AMAZON RIVER	1.55 52.5W	1.25 52.3W	40 NV	100 N Y	890809 21:00:02	165 286 8	22
81	100	BRAZIL	CLEARING, DEVELOPMENT		2.35 51.7W	10	100 N N	890809 21:00:21	165 286 7	22
82	93	BRAZIL	AMAZON RIVER	2.05 54.0W	0.2N 53.1W	20 LO	250 N N	890809 20:59:24	165 286 9	22
84	66	BRAZIL	AMAZON RIVER	1.05 51.5W	3.05 51.5W	60 LO	100 O N	890812 19:54:48	165 287 22	69
84	67	BRAZIL	AMAZON RIVER	0.8 50.5W	3.55 51.1W	70 LO	100 O N	890812 19:54:58	165 287 22	69
84	68	BRAZIL	AMAZON RIVER	0.55 50.5W	4.25 50.7W	70 LO	100 O N	890812 19:55:10	165 288 21	69
84	69	BRAZIL	AMAZON RIVER	1.55 52.0W	4.55 50.4W	80 LO	100 O N	890812 19:55:16	165 288 21	69
84	70	BRAZIL	AMAZON RIVER	0.55 49.0W	4.45 50.3W	70 HO	100 O N	890812 19:55:23	165 288 21	69
84	11	BRAZIL	MANAUS, AMAZON R. R. NEGRO	3.05 60.0W	0.65 60.4W	40 LO	250 N N	890810 21:08:15	164 286 14	38
84	12	BRAZIL	AMAZON RIVER	2.55 57.0W	1.75 59.8W	5 LO	250 N N	890810 21:08:35	164 286 13	38
84	13	BRAZIL	AMAZON RIVER	2.55 56.5W	2.15 59.6W	5 LO	250 N N	890810 21:08:42	164 286 13	38

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
94	14	BRAZIL	RIO TAPAIGS	6.05 57.0W	4.45 58.2W	10 NV	250 N N 890810	21:39:24	166 287 11 38
94	20	BRAZIL	CRUZEIRO DO SUL RJURUS	8.05 73.0W	7.75 71.7W	40 LO	100 N N 890812	21:26:45	165 288 10 70
94	31	BRAZIL	NEW TOWNS		8.65 71.1W	40 LO	100 N N 890812	21:27:02	165 289 17 70
94	32	BRAZIL	NEW DEVELOPMENT		10.15 70.3W	10 LO	100 O Y 890812	21:27:28	165 289 16 70
94	33	BRAZIL	NEW DEVELOPMENT		10.35 70.2W	15 LO	100 O Y 890812	21:27:32	165 289 16 70
94	34	BRAZIL	NEW DEVELOPMENT		10.55 70.0W	20 LO	100 O Y 890812	21:27:36	165 289 16 70
99	46	BRAZIL	ATLANTIC EAST COAST	6.05 55.0W	2.95 56.1W	70 HO	50 N N 890810	19:38:10	166 284 12 37
99	47	BRAZIL	ATLANTIC EAST COAST	7.05 55.0W	3.35 55.8W	70 HO	50 N N 890810	19:38:16	166 284 11 37
99	48	BRAZIL	ATLANTIC EAST COAST	7.55 55.0W	4.05 55.5W	70 HO	50 N N 890810	19:38:30	166 284 11 37
99	49	BRAZIL	ATLANTIC EAST COAST	8.05 55.0W	4.75 55.0W	75 HO	50 N N 890810	19:38:43	166 287 10 37
99	58	BRAZIL	RIO BRANCO, TROP. STORMS	3.0N 61.0W	0.3N 60.9W	80 HO	50 N N 890810	21:07:45	166 286 15 38
99	59	BRAZIL	RIO BRANCO, TROP. STORMS	1.0N 61.0W	0.35 60.6W	80 HO	50 N N 890810	21:07:56	166 286 14 38
99	60	BRAZIL	RIO BRANCO, TROP. STORMS	1.0N 61.0W	1.15 60.1W	85 HO	50 N N 890810	21:08:11	166 286 14 38
99	91	BRAZIL	AMAZON R. DELTA, CST.	2.0N 69.0W	4.2N 69.0W	40 HO	50 N N 890811	19:43:49	165 284 25 53
74	36	BRITAIN	BRISTOL CHANNEL	51.5N 3.0W	51.4N 3.0W	70 NV	250 N N 890811	13:26:17	162 206 51 49
74	37	BRITAIN	ENGLISH CHANNEL	50.5N 2.5W	51.4N 3.3W	50 NV	250 N N 890811	13:26:23	162 207 51 49
74	38	BRITAIN	ISLE OF WIGHT	50.5N 1.5W	51.3N 2.3W	40 NV	250 N Y 890811	13:26:27	162 208 51 49
74	39	BRITAIN	ISLE OF WIGHT	50.5N 1.0W	51.2N 2.7W	50 NV	250 N Y 890811	13:26:30	162 208 51 49
74	40	BRITAIN	ISLE OF WIGHT	51.0N 1.0W	51.1N 2.4W	60 NV	250 N Y 890811	13:26:33	162 209 51 49
74	41	BRITAIN	LONDON	51.5N 0.5W	50.7N 1.0W	60 NV	250 N N 890811	13:26:45	162 210 51 49
76	100	BRITAIN	CLOUDS		54.5N 0.5W	90 LO	250 N N 890809	09:59:32	161 135 44 15
80	53	BRITAIN	SHEPHERD ISLANDS	60.0N 1.5W	57.1N 2.6W	60 LO	100 N N 890810	11:42:57	162 168 48 32
83	7	BRITAIN	ISLE OF WIGHT	51.0N 0.5W	51.2N 2.6W	80 LO	100 N N 890811	13:26:36	162 208 51 49
84	23	BRITAIN	SCOTLAND	57.5N 3.0W	55.6N 3.5W	80 LO	100 N N 890812	12:01:32	162 174 49 64
84	24	BRITAIN	SCOTLAND	56.6N 3.6W	55.5N 3.0W	80 NV	100 N N 890812	12:01:37	162 174 50 64
84	25	BRITAIN	SCOTLAND	54.5N 3.5W	55.4N 2.4W	70 NV	100 N N 890812	12:01:32	162 175 50 64
84	26	BRITAIN	NORTHERN ENGLAND	54.0N 1.0W	55.0N 0.6W	80 NV	100 N N 890812	12:01:59	162 178 50 64
87	79	BRITAIN	HEBRIDES ISLES	57.5N 7.5W	57.0N 8.9W	80 NV	100 N Y 890811	11:51:22	161 162 47 48
87	80	BRITAIN	HEBRIDES ISLES	58.4N 7.0W	57.0N 8.5W	80 NV	100 N Y 890811	11:51:25	161 163 47 48
87	81	BRITAIN	NORTHERN SCOTLAND	58.0N 4.5W	56.9N 6.0W	80 LO	100 N Y 890811	11:51:40	161 165 48 48
87	82	BRITAIN	NORTHERN SCOTLAND	57.0N 5.0W	56.8N 6.3W	80 NV	100 N Y 890811	11:51:44	162 166 48 48
87	83	BRITAIN	NORTHERN SCOTLAND	57.0N 3.5W	56.8N 5.7W	80 LO	100 N Y 890811	11:51:49	162 167 48 48
87	84	BRITAIN	NORTHERN SCOTLAND	56.5N 4.0W	56.8N 5.4W	80 NV	100 N Y 890811	11:51:52	162 167 48 48
87	85	BRITAIN	NORTHERN SCOTLAND	57.0N 2.5W	56.7N 4.5W	80 LO	100 N Y 890811	11:52:00	162 169 48 48
87	86	BRITAIN	NORTHERN SCOTLAND	58.0N 4.0W	56.6N 3.9W	80 NV	100 N Y 890811	11:52:05	162 170 48 48
87	87	BRITAIN	NORTHERN SCOTLAND	57.5N 4.5W	56.6N 3.7W	80 NV	100 N Y 890811	11:52:07	162 170 48 48
87	88	BRITAIN	NORTHERN SCOTLAND	56.5N 5.0W	56.6N 3.3W	80 NV	100 N Y 890811	11:52:10	162 170 48 48
87	89	BRITAIN	NORTHERN SCOTLAND	56.5N 3.5W	56.5N 3.0W	80 NV	100 N Y 890811	11:52:13	162 171 48 48
87	90	BRITAIN	NORTHERN SCOTLAND	55.5N 4.0W	56.5N 2.3W	80 NV	100 N Y 890811	11:52:19	162 172 48 48
87	91	BRITAIN	SCOTLAND	55.0N 3.0W	56.4N 1.7W	80 NV	100 N Y 890811	11:52:24	162 173 48 48
88	106	BRITAIN	FIRTH OF FORTH, EDINBURGH	56.0N 3.5W	56.1N 0.4E	70 LO	250 N N 890811	11:52:51	162 176 49 48
88	107	BRITAIN	CLOUDS-PARTIAL FRAME	55.0N 3.0W		80 LO	250 N N		
91	1	BRITAIN	THE WASH	53.0N 0.5E	54.1N 0.1W	50 LO	250 N N 890813	09:03:28	160 121 36 78
91	2	BRITAIN	CLOUDS	52.0N 0.8	56.2N 0.7E	80 LO	250 N N 890813	09:03:35	160 122 36 78
91	3	BRITAIN	EASTERN COASTLINE	52.5N 1.0E	56.3N 1.6E	30 LO	250 N N 890813	09:03:43	160 123 37 78
93	1	BRITAIN	MORECAMBE BAY, IRISH SEA	54.0N 3.0W	55.3N 4.3W	20 LO	250 N Y 890810	10:08:44	161 134 43 31
93	2	BRITAIN	MORECAMBE BAY, LAKE AREA	54.5N 3.0W	55.4N 4.0W	10 LO	250 N Y 890810	10:08:47	161 134 43 31
93	3	BRITAIN	SOLWAY FIRTH, LAKE AREA	55.0N 3.5W	55.5N 3.5W	40 LO	250 N Y 890810	10:08:52	161 135 43 31
93	4	BRITAIN	LAKE AREA	54.5N 3.0W	55.5N 3.1W	20 NV	250 N Y 890810	10:08:55	161 135 43 31
93	5	BRITAIN	ABERDEEN, NE COAST	57.5N 2.0W	56.2N 1.5E	30 LO	250 N N 890810	10:09:37	161 142 44 31
93	73	BRITAIN	SOLWAY FIRTH, LAKE AREA	55.0N 4.0W	57.1N 4.3W	75 LO	100 N N 890810	11:42:37	161 166 48 32
97	0 A	BRITAIN	BRISTOL CH. TIDE LINE	51.5N 4.0W		25 LO	100 N N		
97	0 B	BRITAIN	BRISTOL CH. TIDE LINE	51.0N 4.0W		25 LO	100 N N		
97	0 C	BRITAIN	BRISTOL CH. TIDE LINE	51.5N 3.5W		25 LO	100 N N		
97	0 D	BRITAIN	BRISTOL CH. TIDE LINE	51.0N 3.0W		25 LO	100 N N		
98	100	BRITAIN	IRISH SEA, MORECAMBE BAY	53.5N 3.0W	55.5N 3.2W	75 LO	250 N N 890810	10:08:49	161 135 43 31
98	101	BRITAIN	LAKE CTRY, MORECAMBE BAY	54.0N 3.0W	55.9N 1.3W	60 LO	250 N N 890810	10:09:07	161 138 44 31
100	26	BRITAIN	ISLE OF MAN, IRISH SEA	54.0N 4.5W	53.7N 4.2W	25 LO	250 N N 890812	08:53:26	161 113 34 62
151	14	BRITAIN	ENGLISH CH. FRANCE	51.5N 2.0W	53.7N 3.7W	75 LO	90 N Y 890809	09:58:54	161 130 43 15
151	15	BRITAIN	ENGLISH CH. FRANCE	51.5N 2.0W	54.0N 2.6W	75 LO	90 N Y 890809	09:59:05	161 132 44 15
152	1	BRITAIN	SOLWAY FIRTH, IRISH SEA	54.5N 4.0W	55.2N 5.3W	80 LO	250 N N 890810	10:08:26	161 132 42 31
152	2	BRITAIN	F. OF FORTH, EDINBURGH	56.5N 3.5W	55.4N 4.1W	80 LO	250 N N 890810	10:08:37	161 134 43 31
152	3	BRITAIN	SOLWAY FIRTH, MORECAMBE B.	54.5N 4.0W		60 LO	250 N N		
152	4	BRITAIN	BRISTOL CH. SW PENINSULA	51.5N 3.5W	55.8N 1.6W	40 HO	250 N N 890810	10:09:00	161 137 44 31
152	59	BRITAIN	ENGLISH CH. PANORAMA	49.5N 4.0W	57.1N 8.3W	70 HO	250 N N 890810	11:41:54	161 160 47 32
152	60	BRITAIN	IRISH SEA, ISLE OF MAN	54.5N 5.0W	57.1N 5.8W	50 LO	250 N Y 890810	11:42:15	161 163 48 32
152	61	BRITAIN	IRISH SEA, ISLE OF MAN	54.0N 3.5W		50 LO	250 N Y		
152	62	BRITAIN	IRISH SEA, SOLWAY FIRTH	54.5N 3.5W	57.1N 4.1W	50 LO	250 N Y 890810	11:42:30	162 166 48 32
152	63	BRITAIN	IRISH SEA, MORECAMBE BAY	53.5N 3.5W		50 LO	250 N N		
152	64	BRITAIN	BRISTOL CH. SW ENGLAND	51.0N 2.5W	57.0N 0.8W	50 HO	250 N N 890810	11:42:58	162 171 48 32



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL	OR
153	74 F	BRITAIN	ISLE OF MAN, IRISH SEA	55.0N 4.0W		85	LO	90	N	N				
153	74 G	BRITAIN	IRISH SEA, MID ENGLAND	54.0N 1.5W		85	LO	90	N	N				
75	85	BURMA	CHINDWIN RIVER	21.5N 94.5E	22.4N 94.2E	88	NY	190	N	N	890809	18:18:06	165 277 26	15
151	59	BURMA	IRRAWADDY R. VALLEY	20.0N 95.5E	22.7N 94.9E	85	HO	90	N	N	890809	18:18:43	165 277 27	15
76	1	CANADA	CLOUDS	52.9N 89.1W		90	HO	250	N	N	890808	20:33:01	162 221 47	6
83	4	CANADA	UNDEREXPOSED-FIRES.SMOKE	47.3N 81.4W		30	LO	190	N	N	890811	13:13:46	161 98 28	49
83	5	CANADA	UNDEREXPOSED	47.9N 80.5W		10	LO	190	U	N	890811	13:13:50	161 100 29	49
93	100	CANADA	INTERNATIONAL FALLS, AGR	49.0N 93.0W	48.0N 95.4W	8	LO	250	N	Y	890810	14:34:16	161 184 33	34
71	22	CANADA-A	CALGARY	51.5N 114.0W	52.9N 113.6W	60	LO	100	N	N	890808	17:22:47	161 131 44	4
71	85	CANADA-A	CALGARY	51.0N 113.0W	50.6N 115.3W	30	LO	190	N	N	890808	22:04:46	163 231 46	7
72	53	CANADA-A	COLUMBIA ICEFIELD	52.0N 117.0W	52.0N 116.6W	0	NY	250	N	Y	890808	17:22:09	161 126 44	4
72	54	CANADA-A	SASKATCHEWAN RIVER	52.0N 116.5W	52.2N 116.0W	5	NY	250	N	Y	890808	17:22:15	161 127 44	4
72	55	CANADA-A	SASKATCHEWAN RIVER	52.5N 116.5W	52.5N 115.1W	20	NY	250	N	Y	890808	17:22:25	161 128 44	4
74	74	CANADA-A	ROCKY MOUNTAINS	51.5N 114.0W	48.0N 103.2W	50	HO	250	N	N	890811	14:44:30	161 100 29	50
81	60	CANADA-A	ATHABASCA RIVER	58.0N 110.0W	54.5N 115.4W	50	HO	100	N	N	890809	17:32:24	161 133 43	20
82	15	CANADA-A	PEACE RIVER,CARIBOU MTS.	58.5N 116.0W	55.0N 113.1W	30	LO	100	N	N	890809	17:32:46	161 136 44	20
82	30	CANADA-A	AGRICULTURE,LAKES,CLOUDS	52.0N 110.5W	50.2N 105.9W	80	LO	250	N	N	890809	15:58:21	162 115 39	19
82	33	CANADA-A	LESSER SLAVE LAKE	55.5N 115.0W	54.4N 116.0W	40	LO	250	N	N	890808	17:32:06	161 132 43	20
82	31	CANADA-A	LESSER SLAVE LAKE	55.5N 115.0W	54.6N 115.1W	30	NY	250	N	N	890809	17:32:15	161 133 43	20
82	32	CANADA-A	ATHABASCA RIVER	57.0N 111.5W	55.4N 111.4W	5	NY	250	N	N	890809	17:32:50	161 138 44	20
82	46	CANADA-A	ZAMA LAKE	58.5N 119.0W	57.1N 117.1W	5	LO	250	N	N	890809	19:05:54	161 163 48	21
82	47	CANADA-A	CHINCHAGA RIVER	58.5N 118.0W	57.1N 116.4W	5	LO	250	N	N	890809	19:06:00	161 164 48	21
82	48	CANADA-A	PEACE RIVER	58.5N 116.0W	57.2N 115.0W	5	NY	250	N	N	890809	19:06:12	162 166 48	21
83	35	CANADA-A	PEACE RIVER	56.5N 118.5W	56.7N 119.7W	40	NY	100	N	Y	890811	19:24:34	161 166 48	22
83	36	CANADA-A	PEACE RIVER	56.5N 117.5W	56.5N 117.9W	40	NY	100	N	Y	890811	19:24:50	161 168 48	53
83	37	CANADA-A	ATHABASCA RIVER	56.5N 113.5W	56.1N 114.5W	30	NY	100	N	Y	890811	19:25:20	162 173 49	53
83	38	CANADA-A	ATHABASCA RIVER	57.0N 111.5W	55.8N 112.3W	30	NY	100	N	Y	890811	19:25:40	162 177 49	53
83	39	CANADA-A	ATHABASCA RIVER	56.0N 111.0W	55.6N 111.0W	20	NY	100	N	Y	890811	19:25:52	162 179 50	53
84	53	CANADA-A	EDMONTON	53.5N 113.5W	54.5N 113.0W	20	NY	100	N	N	890812	19:34:55	162 179 51	69
85	82	CANADA-A	EDMONTON	53.5N 113.5W	55.0N 113.4W	20	LO	100	O	N	890812	16:27:29	161 118 36	67
85	83	CANADA-A	EDMONTON	53.5N 113.5W	55.1N 113.0W	20	LO	100	O	N	890812	16:27:12	161 119 36	67
85	84	CANADA-A	EDMONTON	53.5N 113.5W	55.2N 112.6W	20	LO	100	O	N	890812	16:27:16	161 119 36	67
89	39	CANADA-A	AGRICULTURE	50.0N 112.0W	50.9N 112.1W	5	NY	100	N	N	890810	16:00:05	151 112 34	35
94	0 E	CANADA-A	PEACE R. SMOKY R. AGR.	56.0N 117.0W		30	LO	250	N	N				
94	38	CANADA-A	N.SASKATCHEWAN R.FROG L.	54.0N 110.5W	54.5N 113.1W	20	LO	250	N	N	890812	19:34:56	162 179 50	69
94	41	CANADA-A	EDMONTON, N.SASK.R. AGR.	53.5N 113.5W	53.6N 109.5W	15	LO	250	N	N	890812	19:35:32	162 183 51	69
94	42	CANADA-A	EDMONTON, N.SASK.R. AGR.	54.8N 113.0W	53.5N 109.1W	10	LO	250	N	N	890812	19:35:16	162 186 51	69
94	43	CANADA-A	EDMONTON, N.SASK.R. AGR.	53.5N 112.5W	53.3N 108.6W	20	LO	250	N	N	890812	19:35:41	162 186 52	69
94	44	CANADA-A	BATTLE R. RED DEER LAGR	53.0N 112.5W	53.2N 108.3W	25	LO	250	N	N	890812	19:35:44	162 187 52	69
97	78	CANADA-A	PEACE R. AGR.	58.5N 116.0W	56.9N 114.0W	10	LO	250	N	Y	890810	19:15:47	162 171 44	37
97	79	CANADA-A	PEACE R. AGR.	58.0N 116.0W	56.0N 112.9W	5	LO	250	N	Y	890810	19:15:57	162 172 49	37
100	63	CANADA-A	EDMONTON,N.SASK.R.BATT.R	53.5N 113.5W	55.0N 113.2W	20	LO	250	U	N	890812	16:26:56	161 118 36	67
100	64	CANADA-A	EDMONTON,N.SASK.R.BATT.R	53.5N 113.5W	55.1N 112.9W	20	LO	250	U	N	890812	16:26:59	161 119 36	67
100	65	CANADA-A	EDMONTON,N.SASK.R.BATT.R	53.5N 113.5W	55.2N 112.5W	25	LO	250	U	N	890812	16:27:03	161 119 36	67
152	162	CANADA-A	RED DEER, GULL LAKE, AGR	52.5N 114.5W	52.9N 114.8W	50	NY	250	N	N	890810	20:48:49	162 205 50	
71	13	CANADA-BC	VANCOUVER ISLAND	49.5N 126.5W	47.8N 126.5W	20	LO	100	N	N	890808	17:20:18	161 112 40	4
71	14	CANADA-BC	VANCOUVER ISLAND	49.5N 125.0W	48.1N 125.7W	20	NY	100	N	N	890808	17:20:25	161 113 40	4
71	15	CANADA-BC	VANCOUVER	49.0N 123.0W	48.5N 124.9W	10	LO	100	N	N	890808	17:20:36	161 114 40	4
71	16	CANADA-BC	VANCOUVER	49.0N 122.5W	48.7N 124.5W	10	LO	100	N	N	890808	17:20:41	161 115 41	4
71	17	CANADA-BC	VANCOUVER	49.5N 122.5W	49.5N 122.8W	5	NY	100	N	N	890808	17:21:02	161 117 41	4
71	18	CANADA-BC	ROCKY MOUNTAINS	52.5N 120.0W	50.5N 120.5W	10	LO	100	N	N	890808	17:21:30	161 121 42	4
71	19	CANADA-BC	ROCKY MOUNTAINS	52.5N 119.0W	50.6N 120.3W	5	LO	100	N	N	890808	17:21:33	161 121 42	4
71	20	CANADA-BC	ROCKY MOUNTAINS	51.5N 118.0W	50.8N 119.7W	5	NY	100	N	N	890808	17:21:39	161 122 42	4
71	21	CANADA-BC	ROCKY MOUNTAINS	50.5N 116.5W	51.2N 118.8W	5	NY	100	N	N	890808	17:21:50	161 123 43	4
71	54	CANADA-BC	WILLISTON LAKE	56.5N 124.5W	57.1N 127.4W	60	LO	100	N	N	890808	20:28:42	162 178 49	6
71	55	CANADA-BC	WILLISTON LAKE	56.5N 124.5W	57.1N 126.7W	60	LO	100	N	N	890808	20:28:48	162 179 49	6
71	56	CANADA-BC	WILLISTON LAKE	56.5N 124.0W	57.1N 126.3W	60	LO	100	N	N	890808	20:28:51	162 179 49	6
71	57	CANADA-BC	WILLISTON LAKE	56.5N 123.5W	57.0N 123.4W	60	NY	100	N	N	890808	20:29:16	162 184 49	6
71	58	CANADA-BC	PEACE RIVER	56.5N 120.0W	56.7N 119.7W	20	NY	100	N	N	890808	20:29:48	162 189 49	6
71	73	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	55.7N 134.2W	70	LO	100	N	N	890808	22:01:36	162 202 49	7
71	74	CANADA-BC	COAST MOUNTAINS	52.5N 127.0W	55.6N 133.8W	70	HO	100	N	N	890808	22:01:40	162 203 49	7
71	75	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	55.4N 132.5W	50	HO	100	N	N	890808	22:01:52	162 205 49	7
71	76	CANADA-BC	COAST MOUNTAINS	53.0N 127.0W	55.1N 131.2W	60	LO	100	N	N	890808	22:02:04	162 207 49	7
71	77	CANADA-BC	COAST MOUNTAINS	53.0N 127.0W	54.0N 129.7W	50	LO	100	N	N	890808	22:02:18	162 209 49	7
71	78	CANADA-BC	COAST MOUNTAINS	52.5N 126.0W	54.6N 128.5W	40	LO	100	N	N	890808	22:02:30	162 211 48	7
71	79	CANADA-BC	COAST MOUNTAINS	52.0N 124.5W	54.2N 127.1W	40	LO	100	N	N	890808	22:02:44	162 213 48	7
71	80	CANADA-BC	COAST MOUNTAINS	51.0N 123.0W	53.7N 125.2W	50	LO	100	N	N	890808	22:03:03	162 216 48	7
71	81	CANADA-BC	ROCKY MOUNTAINS	52.0N 118.0W	52.7N 121.7W	60	LO	100	N	N	890808	22:03:39	162 221 47	7
71	82	CANADA-BC	ROCKY MOUNTAINS	51.5N 117.5W	52.4N 120.7W	60	LO	100	N	N	890808	22:03:50	162 223 47	7
71	83	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	52.0N 119.4W	60	LO	100	N	N	890808	22:04:04	163 225 47	7

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
72	42	CANADA-BC	VANCOUVER ISLAND	49.0N 124.5W	48.7N 124.5W	5 NV	250 N N	890808	17:29:35	161 115 41 4
72	43	CANADA-BC	VANCOUVER	49.0N 123.0W	49.1N 123.7W	18 NV	250 N Y	890808	17:29:45	161 116 41 4
72	44	CANADA-BC	VANCOUVER	49.0N 123.0W	49.3N 123.3W	18 NV	250 N Y	890808	17:29:50	161 117 41 4
72	45	CANADA-BC	COAST MOUNTAINS	50.6N 123.0W	49.5N 122.9W	5 NV	250 N N	890808	17:29:55	161 117 41 4
72	46	CANADA-BC	COAST MOUNTAINS	50.5N 123.0W	49.7N 122.3W	0 NV	250 N N	890808	17:21:33	161 118 42 4
72	47	CANADA-BC	COAST MOUNTAINS	51.0N 122.5W	50.1N 121.5W	5 NV	250 N N	890808	17:21:32	161 119 42 4
72	48	CANADA-BC	QUESNEL LAKE	52.0N 120.5W	50.6N 120.2W	10 NV	250 N N	890808	17:21:22	161 121 42 4
72	49	CANADA-BC	ADAMS LAKE	51.0N 120.0W	50.9N 119.6W	5 NV	250 N N	890808	17:21:31	161 122 43 4
72	50	CANADA-BC	COLUMBIA RIVER	51.5N 118.5W	51.3N 118.4W	0 NV	250 N Y	890808	17:21:40	161 124 43 4
72	51	CANADA-BC	COLUMBIA RIVER	52.0N 118.0W	51.5N 117.8W	0 NV	250 N Y	890808	17:21:55	161 124 43 4
72	52	CANADA-BC	COLUMBIA RIVER	52.0N 118.0W	51.7N 117.3W	0 NV	250 N Y	890808	17:22:01	161 125 43 4
76	70	CANADA-BC	ROCKY MOUNTAINS	50.0N 115.0W	42.7N 111.9W	28 LO	250 N N	890811	14:42:23	161 90 23 50
76	35	CANADA-BC	COAST MOUNTAINS	54.0N 128.0W	54.8N 128.7W	28 NV	250 N Y	890808	22:02:16	162 209 48 7
76	36	CANADA-BC	COAST MOUNTAINS	54.0N 127.5W	54.7N 129.3W	28 NV	250 N Y	890808	22:02:20	162 209 48 7
76	37	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	54.6N 128.7W	18 NV	250 N Y	890808	22:02:26	162 210 48 7
76	38	CANADA-BC	COAST MOUNTAINS	53.5N 127.5W	54.5N 128.2W	5 NV	250 N Y	890808	22:02:31	162 211 48 7
76	39	CANADA-BC	COAST MOUNTAINS	53.0N 127.0W	54.4N 127.7W	18 NV	250 N Y	890808	22:02:36	162 212 48 7
76	40	CANADA-BC	COAST MOUNTAINS	52.5N 127.0W	54.2N 127.0W	18 NV	250 N Y	890808	22:02:43	162 213 48 7
76	41	CANADA-BC	COAST MOUNTAINS	52.5N 127.5W	54.0N 126.4W	28 NV	250 N Y	890808	22:02:49	162 214 48 7
76	42	CANADA-BC	ROCKY MOUNTAINS	52.5N 119.0W	51.6N 118.5W	38 NV	250 N Y	890808	22:04:13	163 227 47 7
76	43	CANADA-BC	ROCKY MOUNTAINS	52.0N 118.5W	51.6N 118.3W	38 NV	250 N Y	890808	22:04:15	163 227 47 7
76	44	CANADA-BC	ROCKY MOUNTAINS	52.0N 118.0W	51.5N 118.0W	38 NV	250 N Y	890808	22:04:18	163 227 47 7
76	45	CANADA-BC	ROCKY MOUNTAINS	51.5N 117.5W	51.4N 117.7W	48 NV	250 N Y	890808	22:04:21	163 228 47 7
76	46	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	50.9N 116.4W	38 NV	250 N Y	890808	22:04:34	163 229 46 7
76	47	CANADA-BC	ROCKY MOUNTAINS	50.5N 115.5W	50.3N 116.4W	58 NV	250 N Y	890808	22:04:37	163 230 46 7
76	48	CANADA-BC	ROCKY MOUNTAINS	50.0N 115.0W	50.7N 116.1W	68 NV	250 N Y	890808	22:04:40	163 230 46 7
81	50	CANADA-BC	COAST MOUNTAINS	50.0N 126.5W	48.2N 133.3W	70 LO	100 N N	890809	17:29:17	161 109 36 20
81	51	CANADA-BC	COAST MOUNTAINS	51.5N 126.5W	49.3N 131.1W	80 LO	100 N N	890809	17:29:45	162 111 38 20
81	52	CANADA-BC	COAST MOUNTAINS	52.0N 125.0W	49.8N 130.6W	50 LO	100 N N	890809	17:29:58	162 113 38 20
81	53	CANADA-BC	COAST MOUNTAINS	52.5N 126.0W	50.2N 127.4W	88 LO	100 N N	890809	17:30:16	161 116 39 20
81	54	CANADA-BC	COAST MOUNTAINS	52.5N 125.5W	51.2N 126.4W	88 LO	100 N N	890809	17:30:28	161 118 40 20
81	55	CANADA-BC	FRASER RIVER	53.5N 122.0W	52.0N 124.1W	78 LO	100 N N	890809	17:30:53	161 121 40 20
81	56	CANADA-BC	FRASER RIVER	53.5N 122.0W	52.3N 123.3W	78 LO	100 N N	890809	17:31:02	161 122 41 20
81	57	CANADA-BC	FRASER RIVER	54.0N 122.0W	52.6N 122.4W	78 LO	100 N N	890809	17:31:10	161 123 41 20
81	58	CANADA-BC	FRASER RIVER	54.0N 120.5W	53.0N 121.2W	88 NV	100 N N	890809	17:31:25	161 125 42 20
82	22	CANADA-BC	SCOTT ISLANDS	51.0N 123.5W	49.4N 130.3W	58 LO	250 N N	890809	17:29:35	162 112 38 20
82	23	CANADA-BC	SCOTT ISLANDS	50.5N 128.5W	49.7N 130.1W	48 NV	250 N N	890809	17:29:45	162 113 38 20
82	24	CANADA-BC	VANCOUVER ISLAND	49.5N 126.5W	50.1N 129.3W	28 LO	250 N N	890809	17:29:55	162 114 38 20
82	25	CANADA-BC	QUEEN CHARLOTTE STRAIT	51.0N 127.0W	50.9N 127.1W	50 NV	250 N N	890809	17:30:07	161 117 39 20
82	26	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	51.3N 126.2W	28 NV	250 N Y	890809	17:30:18	161 118 40 20
82	27	CANADA-BC	COAST MOUNTAINS	52.0N 125.5W	51.6N 125.5W	28 NV	250 N Y	890809	17:30:26	161 119 40 20
82	28	CANADA-BC	COAST MOUNTAINS	51.0N 122.5W	52.1N 124.0W	68 NV	250 N N	890809	17:30:43	161 121 41 20
82	29	CANADA-BC	FRASER RIVER	52.5N 122.0W	52.9N 121.5W	28 NV	250 N N	890809	17:31:10	161 124 41 20
82	44	CANADA-BC	COAST MOUNTAINS	58.5N 133.0W	56.4N 127.6W	48 LO	250 N N	890809	19:04:23	161 147 44 21
82	45	CANADA-BC	COAST MOUNTAINS	59.0N 133.5W	56.5N 126.7W	48 LO	250 N N	890809	19:04:31	161 148 44 21
82	99	CANADA-BC	ST. ELIAS MOUNTAINS	59.5N 138.0W	54.7N 137.1W	58 HO	100 N N	890809	22:10:42	162 202 50 23
82	103	CANADA-BC	KAMLOOPS, THOMPSON RIVER	50.5N 128.0W	51.5N 125.8W	88 LO	100 N N	890809	22:12:46	162 220 49 23
83	26	CANADA-BC	KAMLOOPS, THOMPSON RIVER	50.5N 128.0W	51.1N 119.1W	5 NV	100 N N	890811	16:16:32	161 107 33 51
83	27	CANADA-BC	COLUMBIA RIVER	51.5N 117.5W	51.0N 117.2W	5 NV	100 N Y	890811	16:16:54	161 110 34 51
83	28	CANADA-BC	COLUMBIA RIVER	51.5N 116.5W	52.0N 116.7W	28 NV	100 N Y	890811	16:17:00	161 110 34 51
83	78	CANADA-BC	COAST MOUNTAINS	52.0N 126.5W	53.9N 133.6W	78 HO	100 N N	890812	21:05:48	162 183 51 70
83	85	CANADA-BC	ALASKA	59.0N 133.5W	56.8N 131.4W	10 LO	100 N N	890810	19:13:29	161 146 45 37
83	86	CANADA-BC	ATLIN LAKE, TESLIN LAKE	59.5N 132.5W	56.9N 129.8W	48 LO	100 N N	890810	19:13:43	161 148 45 37
94	0 A	CANADA-BC	ROCKY MTH.TRENCH,FRAS.R.	53.5N 120.5W		38 LO	250 N N			
94	0 B	CANADA-BC	ROCKY MTH.TRENCH,COL.R.	52.0N 118.0W		HO	250 N N			
94	0 C	CANADA-BC	ROCKY MTH.TRENCH,COL.R.	52.0N 117.5W		38 HO	250 N N			
94	0 D	CANADA-BC	ROCKY MTHS, FRASER R.	54.0N 128.0W		38 LO	250 N N			
94	48	CANADA-BC	ROCKY MTHS, KAMLOOPS L.	50.5N 120.5W	51.1N 125.0W	85 LO	250 N N	890812	21:07:23	162 197 53 70
97	40	CANADA-BC	ROCKY MTHS./TRENCH,FRAS.R.	54.0N 120.5W	55.7N 117.1W	38 LO	250 N N	890810	17:41:29	161 134 43 36
99	84	CANADA-BC	ROCKY MTHS, CASCADES	50.0N 121.0W	51.5N 119.3W	58 HO	50 N N	890811	16:16:35	161 108 33 51
99	85	CANADA-BC	ROCKY MTHS,COLUMBIA BAS.	50.0N 120.0W	51.9N 116.0W	48 HO	50 N N	890811	16:16:50	161 110 34 51
151	194	CANADA-BC	FRASER R. COAST MTHS.	50.0N 120.0W	52.1N 124.0W	88 HO	90 N N	890809	17:30:43	161 121 41 20
151	238	CANADA-BC	COAST MTHS, LAKES	53.0N 128.0W		85 LO	90 N N			
151	239	CANADA-BC	VANCOUVER I. COAST MTHS.	50.5N 125.5W		70 LO	90 N N			
152	147	CANADA-BC	FRASER R. PRINCE GEORGE	54.0N 123.0W	54.6N 122.7W	48 NV	250 N N	890810	17:40:39	161 127 41 36
71	24	CANADA-M	HUDSON BAY, HAYES RIVER	57.0N 92.5W	56.6N 93.3W	48 NV	100 N N	890808	17:25:42	161 158 48 4
71	45	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.7N 88.1W	70 LO	100 N N	890808	19:00:33	162 203 48 5
71	46	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.5N 87.4W	70 LO	100 N N	890808	19:00:40	162 204 48 5
71	47	CANADA-M	FIRES, SMOKE	55.5N 91.5W	55.5N 87.0W	70 LO	100 N N	890808	19:00:43	162 205 48 5
71	59	CANADA-M	LAKE WINNIPEGOSIS	53.0N 100.5W	53.4N 100.9W	38 LO	100 N N	890808	20:32:45	162 219 48 6

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FL	E	S	DATE	GMT	SUN AL	AZ	EL	OR
71	60	CANADA-M	LAKE WINNIPEGOSIS	52.0N	99.5W	53.1N	100.0W	30	LO	100	N	H	890008	20:32:54	162	220	47	6
71	61	CANADA-M	LAKE MANITOBA	51.0N	98.5W	52.1N	96.9W	40	LO	100	N	H	890008	20:33:27	163	225	47	6
72	58	CANADA-M	FIRE, SMOKE	57.0N	97.0W	56.3N	97.4W	20	NV	250	N	H	890008	17:25:17	161	155	48	4
72	59	CANADA-M	STEPHENS LAKE	56.5N	95.0W	56.5N	95.8W	30	NV	250	N	H	890008	17:25:31	161	157	48	4
72	60	CANADA-M	NELSON RIVER	56.5N	94.0W	56.6N	94.9W	10	NV	250	N	H	890008	17:25:39	161	158	48	4
72	61	CANADA-M	HUDSON BAY	57.0N	92.5W	56.7N	93.8W	5	NV	250	N	Y	890008	17:25:49	161	160	48	4
72	62	CANADA-M	HUDSON BAY	57.0N	92.5W	56.8N	93.0W	20	NV	250	N	Y	890008	17:25:56	161	161	48	4
76	2	CANADA-M	RIDING MOUNTAIN	50.5N	100.0W	52.2N	97.2W	5	LO	250	N	H	890008	20:33:22	163	224	47	6
76	3	CANADA-M	NORTH DAKOTA BORDER	49.0N	100.0W	52.0N	96.4W	0	LO	250	N	H	890008	20:33:31	163	226	47	6
82	61	CANADA-M	BRANDON, ASSINBOINE R.	50.0N	99.5W	49.5N	98.1W	40	NV	250	N	H	890009	20:43:10	163	228	48	22
82	62	CANADA-M	LAKE MANITOBA	50.0N	98.5W	48.7N	96.3W	10	LO	250	N	H	890009	20:43:32	163	231	47	22
83	9	CANADA-M	DAUPHIN LAKE	51.0N	99.0W	51.2N	96.0W	20	LO	100	U	N	890011	14:46:43	161	180	33	50
83	10	CANADA-M	LAKE MANITOBA	51.0N	99.0W	51.3N	95.7W	10	LO	100	U	N	890011	14:46:46	161	180	33	50
83	11	CANADA-M	LAKE MANITOBA	50.5N	98.5W	51.4N	95.5W	10	LO	100	U	N	890011	14:46:48	161	180	33	50
83	12	CANADA-M	WINNIPEG	50.0N	97.0W	51.5N	95.1W	10	LO	100	U	N	890011	14:46:43	161	180	33	50
83	13	CANADA-M	LAKE WINNIPEG	51.0N	97.0W	51.6N	94.9W	5	LO	100	U	N	890011	14:46:15	161	180	34	50
83	14	CANADA-M	LAKE WINNIPEG	51.5N	97.0W	51.7N	94.7W	5	LO	100	U	N	890011	14:46:18	161	180	34	50
83	15	CANADA-M	LAKE WINNIPEG	52.5N	97.5W	52.8N	94.3W	10	LO	100	U	N	890011	14:46:22	161	180	34	50
83	44	CANADA-M	LAKE WINNIPEG	53.0N	99.5W	52.9N	96.6W	40	NV	100	N	H	890011	13:27:47	162	190	51	53
84	54	CANADA-M	WINNIPEG	50.0N	97.0W	49.6N	98.3W	20	NV	100	N	H	890012	19:37:36	162	205	53	69
89	42	CANADA-M	LAKE WINNIPEG, L. MANITOBA	50.5N	97.5W	55.0N	97.7W	30	LO	100	N	H	890010	14:10:35	161	130	42	35
89	43	CANADA-M	L. WINNIPEG, COBBHAM RIVER	54.0N	95.0W	55.5N	95.4W	70	LO	100	N	H	890010	14:10:57	161	133	42	35
89	44	CANADA-M	HUDSON BAY, NELSON RIVER	57.6N	91.6W	56.1N	91.8W	40	NV	100	N	H	890010	14:11:20	161	133	43	35
89	92	CANADA-M	HUDSON BAY	57.0N	90.0W	51.3N	97.2W	60	HO	100	N	H	890010	19:20:18	162	214	50	37
89	93	CANADA-M	CLOUDS	55.0N	95.0W	49.3N	92.2W	90	HO	100	N	H	890010	19:21:17	163	222	50	37
94	46	CANADA-M	THE PRAIRIE L. SHELL R.	51.5N	101.5W	51.8N	104.0W	25	LO	250	N	H	890012	19:36:31	162	194	52	69
94	47	CANADA-M	THE PRAIRIE L. SHELL R.	51.0N	101.0W	51.5N	103.1W	35	LO	250	N	H	890012	19:36:41	162	196	53	69
99	35	CANADA-M	HUDSON BAY, NELSON R.	57.0N	96.0W	57.1N	99.9W	60	HO	50	N	H	890010	17:44:01	161	158	47	36
99	36	CANADA-M	HUDSON BAY, NELSON R.	57.0N	94.0W	57.1N	98.2W	60	HO	50	N	H	890010	17:44:15	161	161	47	36
99	37	CANADA-M	HUDSON BAY, NELSON R.	57.0N	92.0W	57.1N	95.9W	60	LO	50	N	H	890010	17:44:35	161	164	48	36
151	158	CANADA-M	L. WINNIPEG GROUP, AGR.	50.0N	97.0W	56.5N	103.7W	50	HO	90	N	Y	890009	17:34:50	161	149	46	20
151	159	CANADA-M	L. WINNIPEG GROUP, AGR.	50.0N	98.5W	56.6N	102.4W	50	HO	90	N	Y	890009	17:34:51	161	151	46	20
152	148	CANADA-M	NELSON R. HUDSON BAY	57.5N	93.5W	57.1N	98.0W	50	LO	250	N	H	890010	17:44:19	161	161	47	36
152	149	CANADA-M	NELSON R. HUDSON BAY	57.0N	93.0W	57.1N	94.7W	30	LO	250	N	H	890010	17:44:47	161	166	48	36
72	33	CANADA-N	COASTLINE	56.5N	61.5W	57.1N	64.6W	60	NV	250	N	H	890008	15:56:14	162	170	49	3
79	90	CANADA-N	NEWFOUNDLAND	49.5N	58.5W	50.2N	59.9W	20	NV	100	N	H	890009	12:58:84	162	115	39	17
79	92	CANADA-N	NEWFOUNDLAND, WHITE BAY	50.5N	56.5W	51.1N	57.7W	50	NV	100	N	H	890009	12:58:29	162	118	40	17
79	93	CANADA-N	LABRADOR SEA	50.5N	55.5W	51.5N	56.6W	60	NV	100	N	H	890009	12:58:42	162	120	41	17
79	94	CANADA-N	LABRADOR SEA	53.0N	55.5W	52.2N	54.7W	50	NV	100	N	H	890009	12:58:43	162	122	41	17
79	95	CANADA-N	LABRADOR SEA	55.0N	59.5W	52.7N	53.1W	30	HO	100	N	H	890009	12:58:20	162	125	42	17
80	49	CANADA-N	NEWFOUNDLAND	48.0N	55.5W	48.5N	52.3W	30	LO	100	N	H	890010	11:34:43	161	181	32	32
80	50	CANADA-N	NEWFOUNDLAND	48.5N	54.5W	46.7N	51.8W	30	LO	100	N	H	890010	11:34:46	161	182	32	32
82	35	CANADA-N	GRANDE LAKE	49.0N	57.5W	51.4N	56.6W	30	LO	250	N	H	890009	17:41:14	162	222	48	20
82	36	CANADA-N	GRANDE LAKE	49.0N	57.5W	51.2N	56.0W	20	LO	250	N	H	890009	17:41:20	162	223	48	20
82	37	CANADA-N	ST. GEORGE'S BAY	48.5N	58.5W	50.7N	54.9W	20	LO	250	N	H	890009	17:41:33	162	224	48	20
82	38	CANADA-N	CABOT STRAIT	48.0N	58.0W	50.7N	54.7W	10	LO	250	N	H	890009	17:41:35	162	225	48	20
82	39	CANADA-N	CAPE BRETON ISLAND	46.5N	60.5W	50.6N	54.5W	5	LO	250	N	H	890009	17:41:38	162	225	48	20
84	43	CANADA-N	LAKE NELVILLE	53.5N	60.0W	56.2N	60.5W	60	LO	100	N	H	890012	13:27:06	161	127	39	65
85	70	CANADA-N	GULF OF SAINT LAWRENCE	50.0N	57.5W	52.3N	62.2W	30	LO	100	N	H	890010	13:07:48	161	117	38	33
85	71	CANADA-N	GULF OF SAINT LAWRENCE	50.5N	57.0W	52.4N	61.8W	30	LO	100	N	H	890010	13:07:52	161	118	38	33
85	72	CANADA-N	GROSWATER BAY	54.5N	58.5W	52.8N	60.7W	70	LO	100	N	H	890010	13:08:04	161	119	39	33
85	73	CANADA-N	GROSWATER BAY	54.0N	58.5W	52.9N	60.3W	70	LO	100	N	H	890010	13:08:09	161	120	39	33
85	74	CANADA-N	LABRADOR SEA COASTLINE	55.0N	60.0W	53.3N	58.8W	70	LO	100	N	H	890010	13:08:24	161	121	39	33
85	75	CANADA-N	LABRADOR SEA COASTLINE	55.0N	58.5W	53.5N	58.2W	70	LO	100	N	H	890010	13:08:30	161	122	40	33
85	85	CANADA-N	LAKE NELVILLE	53.0N	61.0W	53.2N	62.1W	60	LO	100	O	N	890012	16:34:48	162	182	52	67
85	86	CANADA-N	LAKE NELVILLE	53.0N	61.0W	53.1N	61.9W	60	LO	100	O	N	890012	16:34:53	162	183	52	67
85	87	CANADA-N	AVAILON PENINSULA	48.0N	53.0W	49.3N	51.7W	20	LO	100	O	N	890012	16:36:50	162	207	53	67
85	88	CANADA-N	AVAILON PENINSULA	48.0N	53.0W	49.1N	51.3W	20	LO	100	O	N	890012	16:36:55	162	208	53	67
86	70	CANADA-N	GULF OF SAINT LAWRENCE	50.5N	57.0W	52.3N	62.2W	30	LO	100	N	H	890010	13:07:45	161	117	38	33
86	71	CANADA-N	GULF OF SAINT LAWRENCE	50.5N	57.5W	52.4N	61.7W	30	LO	100	N	H	890010	13:07:50	161	118	38	33
86	72	CANADA-N	GROSWATER BAY	54.5N	58.5W	52.8N	60.7W	70	LO	100	N	H	890010	13:08:01	161	119	39	33
86	73	CANADA-N	GROSWATER BAY	54.0N	58.5W	52.9N	60.3W	70	LO	100	N	H	890010	13:08:06	161	120	39	33
86	74	CANADA-N	LABRADOR SEA COASTLINE	55.0N	60.0W	53.4N	58.7W	70	LO	100	N	H	890010	13:08:22	161	122	40	33
86	75	CANADA-N	LABRADOR SEA COASTLINE	55.0N	59.5W	53.5N	58.2W	70	LO	100	N	H	890010	13:08:27	161	122	40	33
86	76	CANADA-N	GULF OF SAINT LAWRENCE	50.0N	64.5W	54.1N	56.0W	50	HO	100	O	N	890010	13:08:50	161	125	41	33
86	77	CANADA-N	GULF OF SAINT LAWRENCE	50.5N	62.5W	54.3N	55.3W	70	HO	100	O	N	890010	13:09:57	161	126	41	33
86	78	CANADA-N	GULF OF SAINT LAWRENCE	50.0N	62.0W	54.9N	52.3W	60	HO	100	O	N	890010	13:09:26	161	130	42	33
86	79	CANADA-N	GULF OF SAINT LAWRENCE	51.0N	59.5W	55.1N	51.6W	50	HO	100	O	N	890010	13:09:33	161	131	42	33
86	80	CANADA-N	GULF OF SAINT LAWRENCE	51.5N	57.5W	55.3N	50.5W	40	HO	100	O	N	890010	13:09:43	161	133	42	33
86	81	CANADA-N	GULF OF SAINT LAWRENCE	51.5N	57.5W	55.4N	49.8W	30	HO	100	O	N	890010	13:09:50	161	134	43	33

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E & DATE	GMT	SUN AL AZ EL OR
86	88	CANADA-N	LAKE MELVILLE	53.8N 61.0W 53.2N 62.4W	60 LO	100 O N	890812 16:34:45	162 188 52	35
86	89	CANADA-N	LAKE MELVILLE	53.8N 61.0W 53.1N 61.9W	60 LO	100 O N	890812 16:34:50	162 189 52	35
86	90	CANADA-N	AVALON PENINSULA	47.5N 53.0W 49.3N 51.7W	30 LO	100 O N	890812 16:34:47	162 207 53	35
86	91	CANADA-N	AVALON PENINSULA	47.5N 53.0W 49.1N 51.3W	10 LO	100 O N	890812 16:34:52	162 208 53	35
87	77	CANADA-N	LABARADOR	49.8N 57.5W 48.6N 55.9W	5 NV	100 H Y	890811 11:43:47	161 102 30	48
87	78	CANADA-N	LABARADOR	48.5N 58.0W 48.8N 55.5W	30 LO	100 H Y	890811 11:43:52	161 102 30	48
88	105	CANADA-N	VICTORIA LAKE	48.5N 57.5W 48.0N 57.2W	10 NV	250 H N	890811 11:43:39	161 100 30	48
89	53	CANADA-N	LABRADOR CITY	53.0N 67.0W 52.5N 67.5W	80 NV	100 H N	890810 17:49:10	162 200 50	36
89	54	CANADA-N	CLOUDS	52.0N 65.0W 52.1N 64.2W	90 NV	100 H N	890810 17:49:24	162 211 50	36
89	55	CANADA-N	CLOUDS	52.0N 64.5W 51.9N 65.7W	90 NV	100 H N	890810 17:49:30	162 212 50	36
89	56	CANADA-N	CLOUDS	52.0N 64.5W 51.3N 64.2W	80 NV	100 H N	890810 17:49:47	162 214 50	36
89	61	CANADA-N	STRAIT OF BELLE ISLE	50.5N 57.0W 50.0N 60.9W	10 LO	100 H N	890810 17:50:25	162 220 50	36
89	62	CANADA-N	LONG RANGE MOUNTAINS	49.5N 57.0W 49.3N 60.5W	10 LO	100 H N	890810 17:50:30	163 221 50	36
89	63	CANADA-N	GULF ST.LAWRENCE COAST	49.5N 57.5W 49.7N 64.3W	20 LO	100 H N	890810 17:50:33	163 221 50	36
89	64	CANADA-N	GULF ST.LAWRENCE COAST	49.8N 57.5W 49.4N 64.0W	20 LO	100 H N	890810 17:50:36	163 221 50	36
89	65	CANADA-N	GULF ST.LAWRENCE COAST	48.5N 58.0W 49.5N 59.3W	20 LO	100 H N	890810 17:50:39	163 222 50	36
89	66	CANADA-N	ST. GEORGE'S BAY	48.5N 58.5W 49.1N 58.9W	10 NV	100 H Y	890810 17:50:50	163 223 50	36
89	67	CANADA-N	ST. GEORGE'S BAY	48.5N 58.5W 48.9N 58.5W	20 NV	100 H Y	890810 17:50:53	163 224 50	36
89	68	CANADA-N	BAY OF ISLANDS	49.0N 58.0W 48.6N 57.7W	30 NV	100 H Y	890810 17:51:05	163 225 49	36
89	69	CANADA-N	BAY OF ISLANDS	49.0N 57.5W 48.4N 57.4W	20 NV	100 H Y	890810 17:51:09	163 226 49	36
89	70	CANADA-N	CASOT STRAIT	47.5N 58.0W 47.3N 56.2W	30 LO	100 H N	890810 17:51:25	163 228 49	36
89	71	CANADA-N	AVALON PENINSULA	47.0N 53.5W 47.4N 55.5W	40 LO	100 H N	890810 17:51:34	163 229 49	36
89	72	CANADA-N	AVALON PENINSULA	47.5N 53.5W 47.3N 55.2W	50 LO	100 H N	890810 17:51:38	163 230 49	36
89	73	CANADA-N	BURN PENINSULA	47.0N 55.0W 47.0N 54.7W	50 NV	100 H Y	890810 17:51:45	163 231 49	36
89	74	CANADA-N	AVALON PENINSULA	48.0N 54.0W 48.9N 54.5W	60 NV	100 H Y	890810 17:51:48	163 231 49	36
89	70	CANADA-N	PANORAMA-ENTIRE PROVINCE	47.5N 59.5W 50.2N 44.8W	40 HO	100 H N	890810 11:34:22	161 110 36	32
89	71	CANADA-N	PANORAMA-ENTIRE PROVINCE	48.0N 59.0W 50.5N 43.9W	40 HO	100 H N	890810 11:34:22	161 111 36	32
89	72	CANADA-N	PANORAMA-ENTIRE PROVINCE	48.0N 59.5W 50.6N 43.8W	40 HO	100 H N	890810 11:34:24	161 112 36	32
96	0 A	CANADA-N	SW AREA, LA POLE BAY	48.0N 58.0W	20 LO	250 H N			
96	0 B	CANADA-N	SW AREA, WHITE BEAR R.	48.0N 57.5W	15 LO	250 H N			
96	0 C	CANADA-N	CENTRAL, SOUTH COAST	48.0N 56.5W	10 LO	250 H N			
96	0 D	CANADA-N	SOUTH CENTRAL COAST	48.0N 55.5W	15 LO	250 H N			
96	0 E	CANADA-N	CENTRAL AREA	48.5N 56.5W	15 LO	250 H N			
96	0 F	CANADA-N	CENTRAL AREA	49.0N 56.5W	25 LO	250 H N			
96	0 G	CANADA-N	NORTH CENTRAL AREA	49.0N 56.0W	15 LO	250 H N			
96	0 H	CANADA-N	NORTH CENTRAL AREA	49.5N 55.5W	10 LO	250 H N			
96	0 J	CANADA-N	NORTHEAST AREA	49.0N 54.5W	0 LO	250 H N			
96	0 K	CANADA-N	EAST AREA	48.5N 54.0W	10 LO	250 H N			
97	45	CANADA-N	MISTAKEN PT. OROG.CLDS.	46.5N 53.5W 46.2N 53.3W	20 LO	250 H N	890810 17:51:54	163 233 49	36
97	46	CANADA-N	AVALON PEN. ATL.CST.	47.0N 53.0W 46.1N 53.1W	15 LO	250 H N	890810 17:51:54	163 234 49	36
97	50	CANADA-N	BURN PEN. SEA WND CLDS	47.0N 55.5W 45.3N 51.8W	70 LO	250 H N	890810 17:52:16	163 236 48	36
151	158	CANADA-N	TORNGAT MTNS. COAST	54.0N 59.0W 55.9N 61.9W	75 LO	90 H N	890809 18:32:19	162 144 46	18
151	205	CANADA-N	SW AREA, CAPE BRETON I.	47.0N 58.0W 52.3N 59.3W	40 HO	50 H N	890809 17:46:43	162 217 49	20
151	206	CANADA-N	SW AREA, CAPE BRETON I.	47.0N 57.8W	40 HO	90 H N			
151	207	CANADA-N	RANGE MTNS. STRBELLE I.	50.5N 54.0W 51.2N 54.1W	25 LO	90 H N	890809 17:41:19	162 222 48	20
151	208	CANADA-N	RANGE MTNS. PLANKTON BL.	50.0N 54.0W	20 LO	90 H N			
151	209	CANADA-N	FOGO I. PLANKTON BLOOM	49.5N 54.0W 50.3N 55.0W	30 LO	90 H N	890809 17:41:32	162 224 48	20
151	210	CANADA-N	FOGO I. PLANKTON BLOOM	50.0N 53.0W 50.3N 53.7W	30 LO	90 H N	890809 17:41:47	162 226 48	20
152	151	CANADA-N	ST. GEORGE PENLST ANDREW	48.0N 60.0W 48.7N 60.3W	10 NV	250 H Y	890810 17:50:25	163 221 50	36
152	152	CANADA-N	STEPHENVILLE ST. GEORGE P.	49.0N 59.5W	15 NV	250 H Y			
152	153	CANADA-N	BAY OF ISLANDS, ROCKY HAR	49.5N 59.0W 49.4N 59.5W	10 NV	250 H Y	890810 17:50:34	163 222 50	36
152	154	CANADA-N	BAY OF ISLANDS, SUMMERSID	49.0N 59.0W	20 NV	250 H Y			
152	155	CANADA-N	SUMMERSIDE, GRAND LAKE	48.5N 57.5W 49.0N 58.0W	40 NV	250 H Y	890810 17:50:46	163 224 50	36
152	156	CANADA-N	SUMMERSIDE, BAY OF ISL	48.0N 58.0W	25 NV	250 H Y			
152	157	CANADA-N	AVALON PEN, TREPASSEY BAY	46.5N 53.5W 46.4N 53.6W	40 LO	250 H N	890810 17:51:52	163 233 49	36
79	89	CANADA-NB	CHALEUR BAY	48.0N 64.0W 48.3N 64.9W	30 NV	100 H N	890809 12:56:33	161 106 36	17
82	50	CANADA-NB	CHIGNECTO BAY	48.0N 64.5W 42.4N 62.8W	10 LO	250 H N	890809 19:15:32	163 219 43	21
80	46	CANADA-NS	SABLE ISLAND	44.0N 60.0W 43.1N 57.6W	50 LO	100 H N	890810 11:33:21	161 95 28	32
80	47	CANADA-NS	CAPE BRETON ISLAND	46.0N 60.5W 43.9N 56.4W	20 LO	100 H N	890810 11:33:39	161 96 29	32
80	48	CANADA-NS	CAPE BRETON ISLAND	45.5N 61.5W 44.2N 56.0W	40 HO	100 H N	890810 11:33:46	161 97 29	32
82	53	CANADA-NS	HALIFAX	45.0N 63.5W 41.8N 61.9W	0 LO	250 H N	890809 19:15:47	163 251 43	21
82	54	CANADA-NS	HALIFAX	44.5N 64.5W 41.6N 61.7W	5 LO	250 H N	890809 19:15:50	163 251 43	21
82	55	CANADA-NS	HALIFAX	45.5N 64.0W 41.1N 61.0W	5 LO	250 H N	890809 19:16:02	163 252 43	21
82	56	CANADA-NS	NOVA SCOTIA	45.5N 64.0W 39.2N 58.7W	40 HO	250 H N	890809 19:16:42	163 256 41	21
87	73	CANADA-NS	BAY OF FUNDY	45.0N 65.0W 45.0N 62.5W	30 LO	100 H N	890811 11:42:17	161 94 26	48
87	75	CANADA-NS	CAPE BRETON ISLAND	46.0N 60.5W 46.8N 59.5W	5 NV	100 H Y	890811 11:43:00	161 98 28	48
87	76	CANADA-NS	CAPE BRETON ISLAND	46.5N 61.0W 46.9N 59.3W	5 NV	100 H Y	890811 11:43:03	161 98 28	48
88	103	CANADA-NS	CHEDOBUCTO BAY	45.5N 61.5W 46.1N 60.7W	0 NV	250 U N	890811 11:42:51	161 96 27	48
81	63	CANADA-NY	LAKE ATHABASCA	60.5N 110.0W 56.4N 104.7W	30 HO	100 H N	890809 17:34:03	161 148 46	20
81	64	CANADA-NY	HUDSON BAY, ICE	57.0N 85.4W	40	100 H N	890809 17:34:49	162 176 49	20

**TABLE 4-4.- STS-26 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	B	DATE	GMT	SUN AL AZ EL	OR
81	65	CANADA-NT	BELCHER ISLANDS	54.0N 79.5W 54.0N	82.1W	80	LO	100	N	N	890809	17:37:15	162 181 49	20
84	37	CANADA-NT	AKIMISKI ISLAND	52.5N 80.0W 50.0N	81.4W	20	NV	100	N	Y	890812	13:23:35	160 183 29	65
84	38	CANADA-NT	AKIMISKI ISLAND	52.5N 81.0W 51.0N	81.1W	20	NV	100	N	Y	890812	13:23:39	160 183 29	65
84	39	CANADA-NT	AKIMISKI ISLAND	53.0N 79.5W 51.2N	80.7W	20	NV	100	N	Y	890812	13:23:43	160 183 30	65
89	88	CANADA-NT	SELWYN MOUNTAINS	62.5N 128.0W 57.1N	125.4W	40	HO	100	N	N	890810	19:14:19	161 154 46	37
89	89	CANADA-NT	GREAT SLAVE LAKE	62.0N 111.0W 56.7N	111.4W	50	HO	100	N	N	890810	20:16:21	162 175 49	37
89	90	CANADA-NT	LAKE ATHABASCA	59.5N 109.5W 54.3N	107.9W	40	LO	100	N	N	890810	19:18:52	162 190 49	37
89	91	CANADA-NT	MUELTH LAKE	60.0N 99.0W 54.0N	99.0W	60	HO	100	N	N	890810	19:18:14	162 194 50	37
99	6 A	CANADA-NT	LOW PRESS.CTR. JET STR.		55.7N 86.3W	85	HO	50	N	N	890809	16:52:41	162 142 45	
99	1	CANADA-NT	LOW PRESS.CTR. JET STR.		56.1N 84.2W	90	HO	50	N	N	890809	16:53:00	162 145 46	18
99	2	CANADA-NT	CYCLONE		56.1N 83.6W	100	HO	50	N	N	890809	16:53:05	162 146 46	18
151	203	CANADA-NT	HUDSON BAY, BELCHER IS.	54.0N 80.0W 54.0N	80.0W	70	LO	90	N	N	890809	17:37:24	162 184 49	20
71	62	CANADA-O	LAKE SUPERIOR	48.0N 85.5W 47.6N	86.3W	50	NV	100	N	N	890809	20:35:35	163 211 44	6
71	63	CANADA-O	LAKE HURON, GEORGIAN BAY	44.5N 81.0W 44.0N	81.5W	30	NV	100	N	N	890809	20:36:44	163 215 42	6
73	29	CANADA-O	LAKE HURON	45.0N 81.5W 41.0N	77.6W	40	LO	250	N	N	890811	19:51:26	163 238 58	53
74	75	CANADA-O	ASHEWEG RIVER	54.5N 87.5W 54.1N	86.5W	0	NV	250	N	N	890811	18:47:39	161 119 37	50
74	76	CANADA-O	JAMES BAY	53.0N 82.0W 53.1N	82.3W	40	LO	250	N	N	890811	18:48:20	161 125 39	50
74	77	CANADA-O	HUDSON BAY	55.0N 82.5W 53.2N	81.7W	20	NV	250	N	N	890811	18:48:26	161 125 39	50
76	4	CANADA-O	LAKE HURON, LAKE ERIE	43.0N 82.0W 46.9N	84.9W	40	LO	250	N	N	890809	20:35:52	163 243 43	6
76	5	CANADA-O	LAKE HURON, LAKE ERIE	42.5N 82.5W 46.7N	84.6W	40	LO	250	N	N	890809	20:35:57	163 244 43	6
76	7	CANADA-O	LAKE ST. CLAIR	42.5N 82.5W 43.4N	79.3W	30	LO	250	N	N	890809	20:37:15	163 252 41	6
76	8	CANADA-O	DETROIT, LAKE ERIE	42.0N 83.0W 43.2N	79.1W	30	LO	250	N	N	890809	20:37:19	163 252 41	6
76	42	CANADA-O	L.SUPERIOR, WHITEFISH BAY	47.0N 85.0W 47.6N	88.5W	30	LO	250	N	N	890809	18:27:31	161 108 36	18
78	43	CANADA-O	LAKE SUPERIOR, AGAWA BAT	47.5N 84.5W 47.7N	88.2W	30	LO	250	N	N	890809	18:27:35	161 108 36	18
78	44	CANADA-O	LAKE SUPERIOR	48.0N 86.0W 48.6N	86.6W	40	NV	250	N	N	890809	18:27:56	162 110 37	18
78	45	CANADA-O	SANDBANK LAKE	51.0N 83.0W 49.4N	84.7W	20	NV	250	N	N	890809	18:28:19	162 112 38	18
81	11	CANADA-O	GREAT LAKES, CLOUDS	46.0N 81.0W 45.3N	82.5W	90	HO	100	N	N	890809	18:28:48	161 102 34	18
81	12	CANADA-O	GREAT LAKES, CLOUDS	47.0N 84.0W 45.6N	82.8W	90	HO	100	N	N	890809	18:28:55	161 103 34	18
81	13	CANADA-O	ALBANY RIVER	51.5N 83.5W 49.9N	83.7W	30	NV	190	N	N	890809	18:28:45	162 114 39	18
81	42	CANADA-O	GREAT LAKES, CLOUDS	43.0N 80.5W 42.9N	86.0W	80	HO	100	N	N	890809	22:46:35	163 244 44	22
83	16	CANADA-O	WINISK RIVER	55.0N 85.5W 54.4N	85.5W	5	NV	100	U	Y	890811	18:47:54	161 121 38	50
83	17	CANADA-O	WINISK RIVER	55.0N 86.5W 54.5N	85.7W	8	NV	100	U	Y	890811	18:47:57	161 121 38	50
83	18	CANADA-O	WINISK RIVER	54.0N 86.5W 54.5N	84.9W	5	NV	100	U	Y	890811	18:48:00	161 121 38	50
83	19	CANADA-O	SUTTON LAKE	54.5N 84.5W 54.7N	84.5W	10	NV	100	U	Y	890811	18:48:06	161 122 38	50
83	20	CANADA-O	HUDSON BAY	54.5N 83.5W 54.8N	83.7W	30	NV	100	U	Y	890811	18:48:12	161 123 38	50
84	31	CANADA-O	LAKE NIPYCON	50.0N 80.0W 42.4N	87.1W	10	NV	190	N	N	890812	13:22:26	160 87 26	65
84	32	CANADA-O	LONG LAKE	49.5N 87.5W 82.5N	86.2W	10	NV	100	N	N	890812	13:22:29	160 87 26	65
84	33	CANADA-O	ALBANY RIVER	51.0N 83.5W 54.3N	83.6W	10	NV	100	N	N	890812	13:23:17	160 181 28	65
84	34	CANADA-O	MISSISSAUGA RIVER	50.5N 82.5W 54.4N	82.7W	10	NV	190	N	N	890812	13:23:20	160 181 28	65
84	35	CANADA-O	MOOSE RIVER	50.5N 81.5W 50.5N	82.5W	10	NV	100	N	N	890812	13:23:23	160 182 29	65
99	94	CANADA-O	CLOUDS	53.0N 80.0W 46.0N	77.0W	90	HO	190	N	N	890810	18:22:18	163 231 49	37
93	182	CANADA-O	LAKE AREA	48.5N 92.0W 48.3N	94.0W	20	LO	250	N	Y	890810	18:36:21	161 105 34	34
93	183	CANADA-O	LAKE AREA	49.5N 92.5W 48.7N	94.0W	0	LO	250	N	Y	890810	18:36:34	161 106 34	34
93	194	CANADA-O	LAKE AREA	49.0N 92.0W 48.8N	93.7W	15	NV	250	N	Y	890810	18:36:38	161 106 34	34
93	196	CANADA-O	LAKE AREA	48.5N 92.5W 50.2N	90.5W	10	LO	250	N	N	890810	18:37:14	161 110 35	34
93	198	CANADA-O	LAKE AREA, TRANS. CONT. HWY	49.5N 91.5W 51.2N	88.1W	0	LO	250	N	N	890810	18:37:46	161 113 37	34
93	110	CANADA-O	ST. JAMES BAY CST	54.0N 83.5W 54.5N	77.1W	50	LO	250	N	N	890810	18:39:42	161 127 41	34
96	93	CANADA-O	MOOSE R. HARBOR, CANA R.	49.5N 82.0W 52.3N	85.1W	35	LO	250	N	N	890810	18:38:11	161 117 38	34
99	80	CANADA-O	L. HURON, GEORGIAN BAY	45.0N 81.0W 45.0N	81.1W	50	HO	50	N	N	890811	18:13:02	161 85 27	49
99	82	CANADA-O	HUDSON BAY, SW SHORE AREA	55.0N 80.0W 54.5N	73.1W	80	HO	50	N	N	890811	18:19:42	161 134 42	50
99	96	CANADA-O	HUDSON BAY, SW SHORE AREA	55.0N 82.5W 57.1N	78.6W	50	HO	50	N	N	890811	18:22:35	161 158 47	51
99	98	CANADA-O	HUDSON BAY, SW COAST AREA	55.0N 84.0W 55.6N	82.2W	50	HO	50	N	N	890811	17:55:13	162 178 50	52
100	48	CANADA-O	LAKE COUNTRY		56.7N 82.0W	10	LO	250	N	N	890812	13:23:29	160 152 29	65
151	181	CANADA-O	L. SUPERIOR, WHITEFISH B	48.0N 86.0W 46.7N	90.2W	60	HO	90	N	N	890809	18:27:09	161 105 35	18
151	182	CANADA-O	L. SUPERIOR, WHITEFISH B	48.5N 85.0W 47.6N	82.5W	50	HO	90	N	N	890809	18:27:32	161 108 36	18
151	183	CANADA-O	LAKE COUNTRY	49.0N 85.5W 48.1N	87.5W	40	LO	90	N	N	890809	18:27:45	161 109 37	18
151	184	CANADA-O	TRANS-CANADA HWY, HEARST	50.0N 82.0W 48.8N	86.1W	50	HO	90	N	N	890809	18:28:03	162 111 37	18
151	185	CANADA-O	MATTAGAMI R. AMTIB R.	50.5N 81.5W		50	HO	90	N	N				
151	186	CANADA-O	MATTAGAMI RIVER	50.0N 80.0W 49.9N	83.6W	75	LO	90	N	N	890809	18:28:35	162 114 39	18
151	200	CANADA-O	HUDSON BAY, NELSON R.	55.5N 88.5W 57.9N	96.6W	70	HO	90	N	N	890809	17:35:02	161 160 47	20
151	201	CANADA-O	HUDSON BAY, CAPE LOOKOUT	55.0N 84.0W 57.1N	83.3W	60	HO	90	N	N	890809	17:35:30	162 164 48	20
151	202	CANADA-O	HUDSON BAY, KINUSHEO R.	54.5N 83.5W 56.3N	82.9W	60	HO	90	N	N	890809	17:36:59	162 180 49	20
151	238	CANADA-O	L. ERIE, N. CST, PELEE I.	42.0N 82.5W		70	LO	90	N	N				
153	0AC	CANADA-O	L. SUPERIOR, SW COAST	47.0N 85.0W		30	LO	250	N	N				
153	0AG	CANADA-O	SAULT STE. MARIE	47.0N 84.0W		20	LO	250	N	N				
153	0AQ	CANADA-O	MANITOULIN I. COCKBURN I.	46.0N 83.0W		30	LO	250	N	N				
153	0AR	CANADA-O	MANITOULIN I. NORTH CH.	46.5N 82.0W		35	LO	250	N	Y				
153	0AS	CANADA-O	BUDBURY, LAKE COUNTRY	46.5N 81.5W		40	LO	250	N	N				
153	20	CANADA-O	L. WINNIPEG	52.5N 94.5W 53.2N	100.4W	80	HO	90	N	N	890811	19:27:46	162 196 51	53
153	21	CANADA-O	THUNDER BAY, BACK BAY	49.0N 90.0W 47.7N	85.7W	70	HO	90	U	N	890811	19:30:28	163 221 52	53

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL OR
153	74	Y CANADA-Q	JAMES BAY, NOTTAWAY R.	51.8N 78.8W		2	LO	90	U	N			
153	95	CANADA-Q	L. ERIEL, HUROH, PANOR.	42.5N 80.5W		85	HO	90	N	N			
82	51	CANADA-PEI	NORTHUMBERLAND STRAIT	46.5N 64.0W 42.2N	62.5W	5	LO	250	N	N	890809	19:15:27	163 250 43 21
82	52	CANADA-PEI	GULF OF ST. LAWRENCE	47.8N 64.5W 42.8N	62.2W	18	LO	250	N	N	890809	19:15:42	163 250 43 21
87	74	CANADA-PEI	NORTHUMBERLAND STRAIT	46.5N 63.0W 45.5N	61.7W	20	NV	100	N	N	890811	11:42:28	161 95 27 48
89	72	CANADA-PEI	NOVA SCOTIA, NORTHUM. STR.	46.5N 62.5W 44.2N	63.7W	20	HO	50	U	N	890811	11:41:53	161 95 25 48
99	73	CANADA-PEI	MAGDALEN IS. NO. CST.	47.5N 61.5W 45.5N	61.7W	20	HO	50	U	N	890811	11:42:22	161 95 27 48
72	31	CANADA-Q	LAC ROMANET	56.8N 68.0W 56.8N	69.2W	40	NV	250	N	N	890808	15:55:34	162 163 48 3
72	32	CANADA-Q	RIVIERE GEORGE	56.5N 64.5W 57.0N	66.8W	50	NV	250	N	N	890808	15:55:35	162 167 49 3
72	63	CANADA-Q	LAC ROMANET	56.5N 68.8W 56.1N	68.7W	50	NV	250	N	N	890808	17:29:30	162 159 49 4
74	87	CANADA-Q	RIVIERE EASTMAIN	52.5N 76.5W 53.4N	78.3W	5	LO	250	N	N	890811	17:56:51	162 195 51 52
78	12	CANADA-Q	MONTREAL	45.5N 73.5W 44.5N	71.8W	5	LO	250	N	N	890809	12:55:34	161 181 33 17
78	13	CANADA-Q	GASPE, PENINSULA	49.8N 64.5W 47.5N	65.7W	0	NV	250	N	N	890809	12:54:58	161 180 34 17
78	14	CANADA-Q	ILE D'ANTICOSTI	50.8N 64.5W 47.6N	65.6W	20	LO	250	N	N	890809	12:54:54	161 180 37 17
78	15	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.0W 48.1N	64.6W	30	NV	250	N	N	890809	12:57:05	162 189 37 17
78	16	CANADA-Q	POINTE DE NATASHQUAN	50.5N 62.6W 48.4N	64.8W	28	LO	250	N	N	890809	12:57:13	162 110 37 17
78	17	CANADA-Q	ILES DE MINING	50.5N 63.0W 48.5N	63.7W	10	LO	250	N	N	890809	12:57:16	162 110 37 17
78	18	CANADA-Q	JACQUES-CARTIER, PASSAGE	50.5N 64.5W 48.6N	63.4W	28	LO	250	N	N	890809	12:57:20	162 111 38 17
78	46	CANADA-Q	LAC DU VIEUX COMPTOIR	53.8N 77.5W 51.2N	80.6W	60	LO	250	N	N	890809	14:23:09	162 118 48 18
78	47	CANADA-Q	FIRE, SMOKE	53.8N 77.6W 51.4N	79.8W	60	LO	250	N	N	890809	14:29:17	162 119 48 18
78	48	CANADA-Q	LAC DU VIEUX COMPTOIR	53.8N 77.5W 52.8N	78.4W	48	NV	250	N	N	890809	14:29:34	162 121 41 18
78	49	CANADA-Q	FIRE, SMOKE	53.8N 77.6W 52.2N	77.8W	48	NV	250	N	N	890809	14:29:41	162 122 41 18
78	88	CANADA-Q	ST. LAWRENCE RIVER	48.5N 69.5W 46.4N	67.7W	58	LO	100	N	N	890809	12:54:23	161 105 35 17
78	91	CANADA-Q	JACQUES-CARTIER, PASSAGE	50.5N 63.0W 50.8N	58.4W	58	LO	100	N	N	890809	12:54:21	162 117 48 17
81	16	CANADA-Q	LA GRANDE RIVIERE	53.5N 78.8W 52.8N	75.9W	78	LO	100	N	N	890809	12:58:14	162 124 42 18
81	66	CANADA-Q	LA GRANDE RIVIERE	53.5N 77.0W 56.3N	77.2W	82	LO	100	N	N	890809	17:34:51	162 189 48 20
81	67	CANADA-Q	LA GRANDE RIVIERE	53.5N 77.0W 56.1N	75.6W	80	LO	100	N	N	890809	17:34:15	162 181 48 20
82	49	CANADA-Q	ST. LAWRENCE RIVER	47.8N 71.6W 45.6N	67.5W	70	LO	250	N	N	890809	19:14:20	163 241 45 21
84	36	CANADA-Q	JAMES BAY, RUPERT BAY	51.5N 79.5W 50.8N	81.6W	28	LO	100	N	N	890812	13:23:31	160 102 29 65
84	40	CANADA-Q	FIRE, SMOKE	53.8N 76.5W 52.6N	78.5W	28	LO	100	N	N	890812	13:24:08	160 106 31 65
84	41	CANADA-Q	LA GRANDE RIVIERE	53.5N 73.8W 53.1N	75.8W	18	LO	100	N	N	890812	13:24:46	160 110 33 65
84	42	CANADA-Q	RIVIERE EASTMAIN	52.5N 71.8W 54.8N	71.9W	20	NV	100	N	N	890812	13:25:18	161 114 34 65
85	59	CANADA-Q	ST. LAWRENCE RIVER	45.5N 73.5W 46.7N	74.9W	10	NV	100	N	N	890810	13:05:12	161 101 32 33
85	60	CANADA-Q	ST. LAWRENCE RIVER	45.5N 74.8W 46.8N	74.5W	10	NV	100	N	N	890810	13:05:14	161 101 32 33
85	62	CANADA-Q	RESERVOIR GOUDIN	48.5N 74.5W 48.9N	70.6W	30	LO	100	O	N	890810	13:04:09	161 106 34 33
85	63	CANADA-Q	RESERVOIR GOUDIN	48.8N 74.0W 49.1N	70.7W	30	LO	100	O	N	890810	13:04:15	161 107 34 33
85	64	CANADA-Q	RESERVOIR PIPMUACAN	49.5N 70.5W 49.6N	69.2W	10	NV	100	N	N	890810	13:04:27	161 108 35 33
85	65	CANADA-Q	RESERVOIR PIPMUACAN	49.5N 70.5W 49.7N	68.9W	20	NV	100	N	N	890810	13:05:30	161 109 35 33
85	66	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.3N	67.5W	36	LO	100	O	N	890810	13:06:48	161 110 36 33
85	67	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.4N	67.2W	48	LO	100	O	N	890810	13:06:51	161 111 36 33
85	68	CANADA-Q	LAC MAGPIE	51.8N 65.8W 51.5N	64.5W	80	NV	100	N	N	890810	13:07:22	161 114 37 33
85	69	CANADA-Q	LAC MAGPIE	51.5N 65.0W 51.6N	64.3W	80	NV	100	N	N	890810	13:07:25	161 114 37 33
85	76	CANADA-Q	GULF OF SAINT LAWRENCE	50.8N 64.5W 54.1N	54.1W	58	HO	100	O	N	890810	13:08:52	161 125 40 33
85	77	CANADA-Q	GULF OF SAINT LAWRENCE	50.5N 62.5W 54.3N	55.3W	78	HO	100	O	N	890810	13:09:00	161 126 41 33
85	78	CANADA-Q	GULF OF SAINT LAWRENCE	50.8N 62.8W 54.5N	52.3W	68	HO	100	N	N	890810	13:08:29	161 136 42 33
85	79	CANADA-Q	GULF OF SAINT LAWRENCE	51.8N 59.5W 55.1N	51.7W	56	HO	100	O	N	890810	13:08:35	161 131 42 33
85	80	CANADA-Q	GULF OF SAINT LAWRENCE	51.5N 57.5W 55.3N	50.5W	40	HO	100	O	N	890810	13:08:46	161 133 42 33
85	81	CANADA-Q	GULF OF SAINT LAWRENCE	51.5N 57.5W 55.4N	48.8W	30	HO	100	O	N	890810	13:08:53	161 134 43 33
85	89	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N	73.5W	70	LO	100	O	N	890812	16:33:00	161 170 49 67
85	90	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N	73.1W	70	LO	100	O	N	890812	16:33:03	161 171 49 67
85	91	CANADA-Q	LAC NAOCOCANE	53.8N 71.0W 55.3N	71.2W	20	LO	100	N	N	890812	16:33:21	162 174 50 67
85	92	CANADA-Q	LAC NAOCOCANE	53.9N 71.0W 55.2N	70.7W	20	LO	100	N	N	890812	16:33:26	162 175 50 67
85	93	CANADA-Q	RESERVOIR MANICOUAGAN	52.5N 68.0W 54.6N	67.9W	40	LO	100	N	N	890812	16:33:53	162 179 50 67
85	94	CANADA-Q	PETIT LAC MANICOUAGAN	52.5N 67.5W 54.6N	67.4W	50	LO	100	N	N	890812	16:33:57	162 180 50 67
86	59	CANADA-Q	ST. LAWRENCE RIVER	45.5N 73.5W 46.7N	74.9W	18	NV	100	N	N	890810	13:05:09	161 101 32 33
86	49	CANADA-Q	ST. LAWRENCE RIVER	45.5N 74.0W 45.8N	74.7W	18	NV	100	N	N	890810	13:05:12	161 102 32 33
86	62	CANADA-Q	RESERVOIR GOUDIN	48.5N 74.5W 48.9N	70.6W	30	LO	100	O	N	890810	13:04:06	161 106 34 33
86	63	CANADA-Q	RESERVOIR GOUDIN	48.8N 74.0W 49.1N	70.7W	30	LO	100	O	N	890810	13:04:11	161 107 34 33
86	64	CANADA-Q	RESERVOIR PIPMUACAN	49.5N 70.5W 49.6N	69.2W	10	NV	100	N	N	890810	13:04:24	161 108 35 33
86	65	CANADA-Q	RESERVOIR PIPMUACAN	49.5N 70.5W 49.7N	68.9W	20	NV	100	N	N	890810	13:04:27	161 109 35 33
86	66	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.3N	67.4W	30	LO	100	O	N	890810	13:06:48	161 111 36 33
86	67	CANADA-Q	ILE D'ANTICOSTI	49.5N 63.5W 50.4N	67.2W	40	LO	100	O	N	890810	13:06:48	161 111 36 33
86	68	CANADA-Q	LAC MAGPIE	51.8N 65.0W 51.5N	64.5W	80	NV	100	N	N	890810	13:07:20	161 114 37 33
86	69	CANADA-Q	LAC MAGPIE	51.5N 65.0W 51.6N	64.2W	80	NV	100	N	N	890810	13:07:23	161 115 37 33
86	72	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N	73.5W	60	LO	100	N	N	890812	16:32:57	161 170 49 35
86	83	CANADA-Q	LA GRANDE RIVIERE	53.5N 76.5W 55.7N	73.0W	70	LO	100	N	N	890812	16:33:01	161 171 49 35
86	84	CANADA-Q	LAC NAOCOCANE	53.8N 71.0W 55.3N	71.1W	20	LO	100	N	N	890812	16:33:19	162 174 50 35
86	85	CANADA-Q	LAC NAOCOCANE	53.8N 71.0W 55.2N	70.6W	20	LO	100	N	N	890812	16:33:24	162 175 50 35
86	86	CANADA-Q	RESERVOIR MANICOUAGAN	52.5N 68.0W 54.6N	67.9W	40	LO	100	N	N	890812	16:33:50	162 179 50 35
86	87	CANADA-Q	PETIT LAC MANICOUAGAN	53.0N 68.0W 54.6N	67.4W	50	LO	100	O	N	890812	16:33:54	162 180 50 35



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
88	104	CANADA-Q	ILES DE LA MADELEINE	47.5N 61.5W 47.3N 58.5W	8 LO	250 N N	890811 11:43:21	161 99 29	48
89	48	CANADA-Q	LAC A L'EAU CLAIRE	56.0N 75.0W 55.2N 78.3W	90 LO	100 H N	890810 17:47:21	162 191 50	36
89	49	CANADA-Q	LAC A L'EAU CLAIRE	56.0N 74.5W 54.9N 78.2W	90 LO	100 H N	890810 17:47:41	162 194 50	36
89	50	CANADA-Q	LAC A L'EAU CLAIRE	56.0N 74.5W 54.7N 75.7W	90 NV	100 N N	890810 17:47:46	162 195 50	36
89	51	CANADA-Q	RIVIERE CANAPISCAU	54.5N 78.0W 53.4N 78.4W	60 NV	100 N N	890810 17:48:39	162 204 50	36
89	52	CANADA-Q	RIVIERE CANAPISCAU	54.5N 78.0W 53.3N 79.3W	60 NV	100 H N	890810 17:48:40	162 204 50	36
89	57	CANADA-Q	DETROIT JACQUES-CARTIER	50.5N 64.0W 51.2N 63.8W	30 NV	100 H Y	890810 17:49:51	162 215 50	36
89	58	CANADA-Q	DETROIT JACQUES-CARTIER	50.5N 63.0W 51.1N 63.5W	20 LO	100 H Y	890810 17:49:54	162 215 50	36
89	59	CANADA-Q	RIVIERE NATASHQUAN	50.5N 62.0W 51.0N 63.4W	20 NV	100 H Y	890810 17:49:56	162 216 50	36
89	60	CANADA-Q	RIVIERE NATASHQUAN	50.5N 61.0W 50.9N 63.1W	20 NV	100 H Y	890810 17:49:59	162 216 50	36
96	94	CANADA-Q	CANAPISCAU LAKE	54.0N 78.5W 55.5N 72.4W	85 LO	250 H N	890810 16:40:18	161 134 43	34
97	41	CANADA-Q	CLEAR LAKES-PART: CLDY	56.0N 74.5W 54.1N 73.0W	75 LO	250 N N	890810 17:48:02	162 199 50	36
97	42	CANADA-Q	LAC MANICOUAGAN	52.0N 67.5W 52.5N 67.7W	40 LO	250 N N	890810 17:48:57	162 200 50	36
97	43	CANADA-Q	NATASHQUAN R. COAST	50.5N 61.5W 49.3N 58.2W	10 LO	250 H N	890810 17:50:35	163 223 50	36
97	44	CANADA-Q	COAST, OLOMANE R.	50.5N 60.0W 48.8N 58.3W	10 LO	250 N N	890810 17:50:47	163 225 50	36
99	38	CANADA-Q	G.ST.LAWRENCE ANTICOSTI	51.0N 65.0W 53.2N 69.6W	60 HO	50 N N	890810 17:49:37	162 205 50	36
99	39	CANADA-Q	G.ST.LAWRENCE ANTICOSTI	51.5N 64.8W 52.4N 67.2W	50 HO	50 H N	890810 17:49:33	162 209 50	36
99	40	CANADA-Q	G.ST.LAWRENCE ANTICOSTI	49.5N 62.8W 51.5N 64.8W	50 HO	50 H N	890810 17:49:30	162 213 50	36
151	167	CANADA-Q	LA GRANDE R. LAKES	53.5N 76.0W 51.9N 78.4W	85 HO	90 N N	890809 14:29:33	162 121 41	18
151	204	CANADA-Q	G.ST.LAWR. ANTICOSTI L	51.0N 67.8W 54.4N 64.8W	70 HO	90 H N	890809 17:29:26	162 205 49	20
151	213	CANADA-Q	ST. LAWRENCE RIVER	47.5N 71.5W 45.3N 67.0W	50 HO	90 H N	890809 19:14:27	163 242 45	21
152	118	CANADA-Q	MONTREAL, ST. LAWRENCE R.	45.5N 73.0W 45.8N 76.5W	5 LO	250 N N	890810 13:04:48	161 99 31	33
152	119	CANADA-Q	MONTREAL L. CHAMPLAIN	45.5N 73.8W 46.4N 75.5W	10 LO	250 N N	890810 13:04:54	161 101 31	33
152	121	CANADA-Q	ST. FRANCIS R. SHERBROOK	45.5N 71.8W 47.7N 71.8W	10 LO	250 H Y	890810 13:05:28	161 104 33	33
152	150	CANADA-Q	CLEAR LAKES	55.5N 75.8W 55.3N 78.4W	90 LO	250 N N	890810 17:47:12	162 191 50	36
71	23	CANADA-S	SASKATCHEWAN RIVER	50.0N 103.5W 55.0N 102.5W	30 LO	100 N N	890808 17:24:37	161 147 47	4
71	44	CANADA-S	LAKE ATHABASCA	50.0N 109.5W 57.1N 109.7W	20 LO	100 N N	890808 18:57:25	162 170 40	5
72	54	CANADA-S	DORE LAKE, LAC LA PLONGE	55.0N 108.0W 54.7N 107.8W	30 NV	250 H N	890808 17:23:48	161 140 46	4
72	57	CANADA-S	SMOOTHSTONE LAKE, DORE L	55.0N 107.0W 54.8N 106.6W	40 NV	250 H N	890808 17:23:54	161 141 46	4
73	1	CANADA-S	PETER POND LAKE	56.0N 109.0W 55.7N 111.6W	40 LO	250 N N	890811 19:24:40	162 178 50	53
73	2	CANADA-S	DORE LAKE, SMOOTHSTONE L	55.0N 107.5W 55.4N 111.1W	70 LO	250 N N	890811 19:24:54	162 180 50	53
73	3	CANADA-S	LAKE WINNEPEGOSS	53.0N 100.5W 53.0N 102.7W	50 LO	250 N N	890811 19:26:06	162 192 51	53
73	4	CANADA-S	LAKE WINNEPEG	53.0N 99.0W 53.5N 101.5W	10 LO	250 N N	890811 19:26:17	162 194 51	53
73	5	CANADA-S	LAKE WINNEPEG	50.5N 97.0W 52.7N 98.7W	10 LO	250 N N	890811 19:26:47	162 190 51	53
81	61	CANADA-S	CREE LAKE	50.0N 106.5W 55.7N 109.5W	60 LO	100 N N	890809 17:33:20	161 141 45	20
81	62	CANADA-S	WOLLASTON LAKE	50.0N 103.0W 56.2N 105.1W	60 LO	100 N N	890809 17:33:52	161 144 46	20
82	12	CANADA-S	SOUTH SASKATCHEWAN RIVER	51.5N 110.0W 48.3N 118.2W	80 LO	250 N N	890809 15:52:28	161 109 37	19
82	13	CANADA-S	REGINA	50.5N 104.5W 49.2N 108.2W	30 LO	250 N N	890809 15:50:53	162 112 38	19
82	14	CANADA-S	BIG QUILL LAKE	52.0N 104.0W 49.5N 107.6W	0 LO	250 N N	890809 15:59:01	162 112 38	19
82	33	CANADA-S	SMOOTHSTONE LAKE	55.0N 107.0W 56.0N 107.7W	0 NV	250 H N	890809 17:33:24	161 144 45	20
82	34	CANADA-S	LAC LA RONGE	55.0N 105.0W 56.2N 106.4W	5 NV	250 H N	890809 17:33:26	161 145 46	20
82	59	CANADA-S	AGRICULTURE, YORKTON	51.5N 102.5W 51.1N 101.8W	5 NV	250 H N	890809 20:42:25	162 222 48	22
83	40	CANADA-S	PETER POND LAKE	56.0N 109.0W 55.2N 108.7W	60 NV	100 N N	890811 19:26:14	162 187 50	53
83	41	CANADA-S	DORE LAKE	55.0N 107.0W 54.3N 107.0W	80 NV	100 H N	890811 19:26:30	162 185 50	53
83	42	CANADA-S	SASKATCHEWAN RIVER	53.0N 106.0W 54.4N 105.1W	10 NV	100 H N	890811 19:26:49	162 188 51	53
83	43	CANADA-S	SASKATCHEWAN RIVER	53.0N 103.5W 54.0N 103.3W	30 NV	100 H N	890811 19:27:06	162 191 51	53
85	85	CANADA-S	PETER POND LAKE	56.0N 108.5W 55.9N 108.2W	0 NV	100 O N	890812 16:27:57	161 124 38	67
85	86	CANADA-S	PETER POND LAKE	56.0N 108.5W 56.0N 107.8W	0 NV	100 O N	890812 16:28:01	161 125 38	67
85	87	CANADA-S	LAKES, CLOUDS	57.0N 107.5W 56.4N 104.7W	40 NV	100 O N	890812 16:28:28	161 129 39	67
85	88	CANADA-S	LAKES, CLOUDS	57.0N 107.5W 56.4N 104.4W	40 NV	100 O N	890812 16:28:31	161 129 39	67
89	40	CANADA-S	LAKE DIFENBAKER	51.0N 100.0W 52.4N 107.9W	10 NV	100 N N	890810 16:08:52	161 117 38	35
89	101	CANADA-S	LAKE DIFENBAKER	51.0N 107.0W 50.6N 108.3W	40 NV	100 H N	890810 20:51:11	162 216 50	38
94	0 F	CANADA-S	MONTREAL L. PLAINS, AGR.	52.5N 105.5W	50 HO	250 N N			
94	0 G	CANADA-S	MONTREAL L. PLAINS, AGR.	53.0N 104.5W	50 HO	250 N N			
94	39	CANADA-S	N.SASKATCHEWAN R. AGR.	53.5N 108.5W 54.2N 112.0W	5 LO	250 H N	890812 19:35:07	162 181 51	69
94	40	CANADA-S	N.SASKATCHEWAN R. AGR.	53.5N 108.5W 53.9N 110.8W	20 LO	250 H N	890812 19:35:19	162 183 51	69
94	43	CANADA-S	LAST MTN. L. AGR.	51.0N 105.0W 52.4N 106.2W	50 LO	250 H N	890812 19:36:07	162 190 52	69
97	21	CANADA-S	L. DIFENBAKER, AGR.	51.0N 107.0W 54.4N 100.8W	30 LO	250 N N	890810 16:09:54	161 126 35	35
97	50	CANADA-S	L. DIFENBAKER, H. PLAINS	51.0N 107.5W 51.9N 111.7W	50 HO	50 H N	890810 20:50:22	162 211 50	38
99	51	CANADA-S	L. DIFENBAKER, H. PLAINS	51.0N 107.0W 51.5N 110.5W	50 HO	50 H N	890810 20:50:35	162 212 50	38
99	52	CANADA-S	L. DIFENBAKER, H. PLAINS	51.0N 105.0W 50.8N 108.9W	50 HO	50 H N	890810 20:50:54	162 215 50	38
99	53	CANADA-S	LAST MTN. L. H. PLAINS	52.5N 104.0W 50.2N 107.4W	50 HO	50 H N	890810 20:51:12	162 218 50	38
100	66	CANADA-S	PETER POND L. CHURCHILL L	56.0N 109.0W 55.9N 108.1W	0 NV	250 U N	890812 16:27:44	161 124 38	67
100	67	CANADA-S	PETER POND L. CHURCHILL L	56.0N 108.5W 56.0N 107.6W	0 LO	250 U N	890812 16:27:48	161 125 38	67
100	44	CANADA-S	BLACK BIRCH L. ITHINGO L	57.0N 107.0W 56.4N 104.7W	25 LO	250 N N	890812 16:28:14	161 129 39	69
100	49	CANADA-S	BLACK BIRCH L. ITHINGO L	57.0N 107.0W 56.4N 104.4W	20 LO	250 N N	890812 16:28:17	161 129 39	69
151	185	CANADA-S	N. SASKATCHEWAN R. AGR.	52.0N 104.5W 55.2N 112.2W	60 HO	90 N N	890809 17:32:42	161 137 44	20
151	196	CANADA-S	N. SASKATCHEWAN R. AGR.	52.5N 104.0W 56.0N 107.8W	40 HO	90 H Y	890809 17:33:23	161 143 45	20
151	197	CANADA-S	SASKATCHEWAN R. TOBIN L.	52.5N 103.5W	40 HO	90 H Y			
151	211	CANADA-S	AGR. MONTREAL L. DORE L	53.5N 106.0W 57.0N 108.7W	40 HO	90 H Y	890809 19:07:04	162 175 40	21

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	212	CANADA-S	AGR. MONTREAL L. DORE L.	53.0N 104.5W		48 HO	90 N Y		
151	220	CANADA-S	AGR. LAKE SASKAWAWEA	49.5N 101.5W		38 LO	90 N H		
152	163	CANADA-S	DEFENBAKER R. AGR.	51.0N 107.5W	50.9N 109.2W	48 LO	250 N H	890810 20:50:53	162 215 50 38
152	164	CANADA-S	REGINA, EAST MOUNTAIN L.	50.5N 105.5W	49.8N 106.5W	50 NV	250 N H	890810 20:51:25	163 220 50 38
153	74 T	CANADA-S	L. DIEFENBAKER, GR. PLAINS	49.5N 108.5W		70 HO	90 N H		
153	81	CANADA-S	L. DIEFENBAKER, GR. PLAINS	51.0N 106.0W		35 HO	90 N H		
89	84	CANADA-YT	MOUNTAINS, LAKES	61.5N 136.0W	56.6N 133.0W	20 HO	100 N H	890810 19:13:15	161 144 44 37
89	87	CANADA-YT	TESLIN LAKE, MOUNTAINS	61.0N 131.0W	57.0N 127.1W	40 HO	100 N H	890810 19:14:06	161 152 44 37
76	74	CANARY ISLANDS	TENERIFE	28.5N 16.5W	29.2N 18.7W	38 LO	250 N H	890809 08:12:53	161 83 29 14
89	46	CANARY ISLANDS	DUST STORM, FUERTEVENTURA	28.9N 14.0W	34.6N 11.3W	68 LO	100 N H	890810 16:27:45	164 246 20 35
89	87	CANARY ISLANDS	CLOUD COVERED, AFR. CST.	28.5N 17.5W	31.8N 20.6W	78 HO	50 N H	890811 16:34:53	164 260 44 51
89	75	CAPE VERDE ISLANDS	SANTIAGO, FOGO, BRAVA	15.0N 24.5W	15.7N 24.8W	38 NV	100 N H	890810 18:02:15	165 280 27 36
89	76	CAPE VERDE ISLANDS	BOA VISTA, SAL, MAIO	16.0N 23.0W	15.4N 23.7W	28 NV	100 N H	890810 18:02:28	165 280 27 36
89	77	CAPE VERDE ISLANDS	SANTIAGO, FOGO, MAIO, BRAVA	15.0N 24.0W	14.5N 23.3W	38 NV	100 N H	890810 18:02:36	165 280 26 36
89	78	CAPE VERDE ISLANDS	SANTIAGO, FOGO, MAIO, BRAVA	14.0N 23.5W	12.5N 22.1W	38 LO	100 N H	890810 18:03:12	165 281 25 36
97	51	CAPE VERDE ISLANDS	SAL	17.0N 23.0W	16.3N 24.0W	28 LO	250 N H	890810 18:01:41	165 279 28 36
97	52	CAPE VERDE ISLANDS	BOA VISTA	16.0N 23.0W	16.3N 24.7W	38 LO	250 N H	890810 18:01:44	165 279 28 36
97	53	CAPE VERDE ISLANDS	MAIO	15.0N 23.0W	16.5N 24.5W	15 LO	250 N H	890810 18:01:49	165 279 28 36
97	54	CAPE VERDE ISLANDS	SANTIAGO	15.0N 23.5W	16.4N 24.5W	38 LO	250 N H	890810 18:01:50	165 279 28 36
97	55	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W	16.3N 24.1W	28 LO	250 N H	890810 18:01:53	165 279 28 36
97	56	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W	15.9N 24.1W	28 LO	250 N H	890810 18:02:00	165 279 28 36
97	57	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W	12.9N 22.3W	48 LO	250 N H	890810 18:02:54	165 281 25 36
99	41	CAPE VERDE ISLANDS	PANORAMA, CLOUD COVERED	18.0N 24.0W	19.8N 26.7W	58 HO	50 N H	890810 18:02:48	165 277 31 36
99	42	CAPE VERDE ISLANDS	PANORAMA, CLOUD COVERED	17.0N 23.5W	18.4N 25.8W	50 HO	50 N H	890810 18:01:15	165 278 30 36
152	159	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W	16.2N 24.3W	48 NV	250 N Y	890810 18:01:57	165 279 28 36
152	160	CAPE VERDE ISLANDS	FOGO, BRAVA	15.0N 24.5W		48 NV	250 N Y		
83	22	CHAD	LAKE CHAD	13.0N 15.0E	12.9N 15.0E	70 HV	100 U H	890811 15:10:22	165 280 30 50
83	23	CHAD	LAKE CHAD	13.0N 15.0E	12.1N 16.4E	70 HV	100 N H	890811 15:10:36	165 281 29 50
83	24	CHAD	LAKE CHAD	13.0N 15.0E	11.7N 16.7E	70 LO	100 N H	890811 15:10:43	165 281 29 50
73	100	CHINA	AGRICULTURE	43.0N 116.5E	45.0N 116.5E	0 HV	250 N H	890812 06:03:43	163 225 52 60
73	101	CHINA	ANSHAN, HACHENG, LIAOTANG	41.0N 123.0E	42.8N 121.5E	78 NV	250 N H	890812 06:05:00	163 235 52 60
73	102	CHINA	ANSHAN, HACHENG	41.0N 123.0E	41.2N 122.6E	68 NV	250 N H	890812 06:05:18	163 237 51 60
75	35	CHINA	USSR BORDER	48.0N 86.5E	49.0N 87.1E	38 NV	100 N Y	890809 02:39:18	163 234 46 14
75	37	CHINA	LAKE ULUNGAR, LAKE JILI	47.0N 88.0E	47.9N 89.2E	28 NV	100 N Y	890809 02:39:47	163 237 46 14
75	38	CHINA	ULUNGAR RIVER	47.0N 89.0E	47.5N 90.0E	48 NV	100 N Y	890809 02:39:57	163 238 45 14
75	39	CHINA	LAKE ULUNGAR, LAKE JILI	47.0N 88.0E	47.0N 90.0E	38 LO	100 N H	890809 02:40:10	163 240 45 14
75	40	CHINA	GURBANTUNGUT DESERT	45.5N 88.5E	46.0N 91.4E	48 LO	100 N H	890809 02:40:16	163 241 45 14
75	41	CHINA	GURBANTUNGUT DESERT	45.0N 88.5E	46.5N 91.0E	48 LO	100 N H	890809 02:40:23	163 241 45 14
75	42	CHINA	BADAKI JARAN DESERT	49.0N 101.5E	49.6N 100.5E	50 NV	100 N Y	890809 02:42:37	164 255 41 14
75	43	CHINA	BADAKI JARAN DESERT	49.0N 102.5E	48.3N 100.9E	58 NV	100 N Y	890809 02:42:43	164 256 40 14
75	44	CHINA	WEI RIVER, XTAN	34.5N 100.5E	34.5N 107.2E	68 NV	100 N H	890809 02:44:43	164 265 36 14
75	45	CHINA	HAN RIVER, QIN MOUNTAINS	33.0N 100.0E	34.3N 107.5E	78 NV	100 N H	890809 02:44:48	164 265 36 14
75	46	CHINA	YANGTZE RIVER, CLOUDS	31.0N 109.5E	32.4N 109.3E	58 NV	100 N H	890809 02:45:26	164 268 34 14
75	47	CHINA	YANGTZE RIVER	29.0N 112.5E	29.2N 112.0E	58 NV	100 N Y	890809 02:46:27	164 271 32 14
75	48	CHINA	YANGTZE RIVER	29.0N 112.5E	28.3N 112.0E	58 NV	100 N Y	890809 02:46:45	164 272 31 14
75	49	CHINA	TUNG RIVER	34.0N 115.0E	25.1N 115.2E	68 NV	100 N Y	890809 02:47:45	165 275 28 14
75	50	CHINA	TUNG RIVER	24.0N 114.5E	24.8N 115.5E	68 NV	100 N Y	890809 02:47:52	165 276 28 14
75	51	CHINA	COASTLINE	22.5N 116.0E	23.3N 116.6E	38 NV	100 N Y	890809 02:48:20	165 277 27 14
75	52	CHINA	COASTLINE	23.0N 116.5E	23.1N 116.7E	28 NV	100 N Y	890809 02:48:23	165 277 27 14
75	53	CHINA	COASTLINE	23.5N 117.5E	22.8N 116.9E	28 NV	100 N Y	890809 02:48:28	165 277 26 14
75	72	CHINA	TAKLIMAKAN DESERT	40.0N 77.0E	40.2N 78.0E	48 NV	100 N Y	890809 10:13:17	164 256 40 15
75	73	CHINA	TAKLIMAKAN DESERT	40.0N 77.5E	40.1N 78.2E	28 NV	100 N Y	890809 10:13:19	164 256 40 15
75	74	CHINA	TAKLIMAKAN DESERT	40.0N 78.0E	40.0N 78.3E	28 NV	100 N Y	890809 10:13:22	164 256 40 15
75	75	CHINA	TAKLIMAKAN DESERT	40.0N 78.5E	39.8N 78.6E	28 NV	100 N Y	890809 10:13:26	164 256 40 15
75	76	CHINA	TAKLIMAKAN DESERT	40.5N 79.5E	39.3N 79.2E	28 NV	100 N Y	890809 10:13:37	164 257 40 15
75	77	CHINA	TAKLIMAKAN DESERT	40.5N 79.0E	39.2N 79.3E	28 NV	100 N Y	890809 10:13:39	164 257 40 15
75	78	CHINA	TAKLIMAKAN DESERT	40.0N 78.0E	39.0N 79.5E	28 NV	100 N Y	890809 10:13:42	164 258 40 15
75	79	CHINA	TAKLIMAKAN DESERT	40.0N 78.5E	38.8N 79.6E	28 NV	100 N Y	890809 10:13:45	164 258 40 15
75	80	CHINA	TAKLIMAKAN DESERT	40.0N 78.0E	38.8N 79.7E	38 NV	100 N Y	890809 10:13:47	164 258 39 15
75	81	CHINA	TAKLIMAKAN DESERT	37.5N 80.0E	37.9N 83.7E	68 NV	100 N Y	890809 10:14:05	164 260 39 15
75	82	CHINA	TAKLIMAKAN DESERT	37.0N 81.0E	37.3N 81.4E	70 NV	100 N Y	890809 10:14:18	164 261 38 15
75	83	CHINA	TAKLIMAKAN DESERT	37.0N 84.0E	36.4N 82.3E	28 NV	100 N H	890809 10:14:36	164 262 38 15
75	84	CHINA	TIBET	35.0N 83.0E	34.6N 84.7E	68 NV	100 N H	890809 10:15:13	164 265 34 15
75	85	CHINA	TIBET	33.5N 81.0E	34.0N 84.8E	80 LO	100 N H	890809 10:15:26	164 266 34 15
75	86	CHINA	TIBET	33.5N 84.5E	33.3N 85.4E	68 NV	100 N H	890809 10:15:39	164 266 35 15
75	87	CHINA	TIBET	30.0N 83.5E	32.1N 86.5E	80 LO	100 N H	890809 10:16:02	164 268 34 15
75	88	CHINA	TIBET	31.5N 87.5E	30.3N 88.1E	88 NV	100 N H	890809 10:16:37	164 270 33 15
76	73	CHINA	CHANGBAI MOUNTAINS	42.0N 128.0E	40.2N 130.1E	58 LO	250 N H	890808 23:19:23	161 96 32 8
76	87	CHINA	YANGTZE RIVER, CLOUDS	31.0N 109.5E	31.2N 110.3E	80 NV	250 N Y	890809 02:45:42	164 269 33 14
76	88	CHINA	YANGTZE RIVER, CLOUDS	31.0N 110.0E	31.0N 110.5E	80 NV	250 N Y	890809 02:45:45	164 269 33 14



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NAOIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
76	89	CHINA	DONG TING LAKE	28.0N 112.5E	28.2N 112.8E	20 NV	250 N N 890809	08:46:30	164 272 31 14
76	90	CHINA	TUNG RIVER	21.8N 114.5E	25.8N 114.7E	40 NV	250 N N 890809	08:47:25	165 275 29 14
76	91	CHINA	SHANTOU	23.5N 117.0E	24.3N 115.8E	10 NV	250 N Y 890809	08:47:53	165 276 28 14
76	92	CHINA	SHANTOU	23.5N 116.5E	24.1N 116.0E	5 NV	250 N Y 890809	08:47:57	165 276 27 14
76	93	CHINA	SHANTOU	23.8N 116.5E	23.9N 116.1E	5 NV	250 N Y 890809	08:48:01	165 276 27 14
76	94	CHINA	CHIEH-SHIK BAY	22.5N 115.5E	23.2N 116.4E	30 NV	250 N N 890809	08:48:14	165 277 27 14
76	95	CHINA	COASTLINE	22.0N 113.0E	21.2N 118.1E	80 LO	250 N N 890809	08:48:52	165 278 25 14
76	96	CHINA	COASTLINE	22.0N 113.0E	20.7N 118.3E	80 LO	250 N N 890809	08:49:00	165 278 25 14
77	18	CHINA	CLOUDS, MOUNTAINS		48.0N 78.3E	70	250 N N 890809	10:13:14	164 254 40 15
77	19	CHINA	WENSU, TOXKAN RIVER	41.0N 80.0E	39.4N 79.1E	5 NV	250 N Y 890809	10:13:28	164 257 40 15
77	20	CHINA	AKSU RIVER, AGRICULTURE	48.5N 80.8E	39.1N 79.3E	10 NV	250 N Y 890809	10:13:33	164 258 40 15
77	21	CHINA	TIAN MOUNTAINS	48.5N 78.5E	38.3N 80.3E	60 LO	250 N N 890809	10:13:51	164 259 39 15
77	22	CHINA	TIAN MOUNTAINS	48.5N 78.5E	37.7N 80.9E	30 LO	250 N N 890809	10:14:02	164 260 39 15
77	23	CHINA	TAKIMAKAN DESERT	48.0N 78.0E	37.2N 81.5E	20 LO	250 N N 890809	10:14:13	164 261 38 15
77	24	CHINA	TIBET	37.6N 81.0E	33.9N 84.9E	40 LO	250 N N 890809	10:15:20	164 264 34 15
77	25	CHINA	ALTUN MOUNTAINS	36.5N 86.5E	33.1N 85.6E	40 LO	250 N N 890809	10:15:36	164 267 35 15
77	26	CHINA	ALTUN MOUNTAINS	36.5N 87.5E	32.8N 85.9E	50 LO	250 N N 890809	10:15:42	164 267 35 15
77	27	CHINA	ALTUN MOUNTAINS	36.5N 87.5E	32.5N 86.2E	50 LO	250 N N 890809	10:15:48	164 267 35 15
77	28	CHINA	ALTUN MOUNTAINS	37.5N 89.0E	31.7N 86.9E	40 LO	250 N N 890809	10:16:03	164 268 34 15
77	29	CHINA	ALTUN MOUNTAINS	37.5N 89.5E	31.2N 87.4E	60 LO	250 N N 890809	10:16:14	164 269 34 15
77	30	CHINA	ALTUN MOUNTAINS	38.0N 90.5E	30.6N 87.9E	70 HO	250 N N 890809	10:16:25	164 270 33 15
77	31	CHINA	TIBET, CLOUDS	32.0N 88.0E	28.7N 89.4E	90 LO	250 N N 890809	10:17:01	164 272 32 15
77	32	CHINA	TIBET, CLOUDS	27.6N 90.3E	27.6N 90.3E	80 LO	250 N N 890809	10:17:22	165 273 31 15
80	37	CHINA	TIBET, PANGONG LAKE	31.0N 79.0E	34.3N 76.7E	70 LO	100 N N 890810	10:23:52	164 261 40 31
80	38	CHINA	TIBET	30.5N 81.5E	32.1N 78.8E	70 LO	100 N N 890810	10:24:35	164 264 39 31
80	46	CHINA	TIBET	30.5N 81.5E	28.4N 81.1E	80 NV	100 N N 890810	10:25:28	164 268 37 31
83	78	CHINA	LAOHA & XAR MORON RIVERS	43.5N 128.0E	43.5N 116.7E	10 LO	100 N N 890812	06:04:52	163 225 52 60
83	80	CHINA	LAOHA & XAR MORON RIVERS	43.0N 129.0E	44.5N 117.9E	20 LO	100 N N 890812	06:05:10	163 228 52 60
83	91	CHINA	GOMI DESERT	43.5N 95.5E	46.0N 92.5E	20 LO	100 N N 890812	07:35:05	163 222 53 61
83	92	CHINA	GOMI DESERT	42.5N 98.0E	45.8N 92.7E	20 HO	100 N N 890812	07:35:09	163 223 53 61
83	93	CHINA	GOMI DESERT	41.5N 98.5E	44.6N 94.7E	20 HO	100 N N 890812	07:35:38	163 227 52 61
83	94	CHINA	BADAKY JARAN DESERT	38.5N 102.5E	42.4N 98.0E	20 LO	100 N N 890812	07:36:29	163 234 52 61
83	95	CHINA	BADAM JARAN DESERT, MOON	39.0N 105.5E	42.2N 98.2E	40 HO	100 N N 890812	07:36:32	163 234 52 61
83	96	CHINA	BADAM JARAN DESERT, MOON	38.0N 107.0E	41.6N 99.1E	50 HO	100 N N 890812	07:36:47	163 236 52 61
83	97	CHINA	LANZHOU	35.5N 103.5E	39.3N 101.9E	50 LO	100 N N 890812	07:37:34	163 242 51 61
83	98	CHINA	YELLOW RIVER	40.6N 100.0E	36.6N 102.7E	40 HO	100 N N 890812	07:37:51	163 243 51 61
83	99	CHINA	YELLOW RIVER	38.0N 106.5E	37.4N 104.8E	30 LO	100 N N 890812	07:38:15	164 246 50 61
83	100	CHINA	YANGTZE RIVER	29.0N 113.0E	30.5N 110.7E	70 LO	100 N N 890812	07:40:33	164 260 46 61
83	101	CHINA	YANGTZE RIVER	29.5N 116.0E	29.1N 111.9E	70 LO	100 N N 890812	07:41:01	164 262 46 61
83	102	CHINA	FORMOSA STRAIT	25.5N 119.0E	25.2N 115.0E	60 LO	100 N N 890812	07:42:15	165 267 43 61
83	103	CHINA	FORMOSA STRAIT	23.5N 117.5E	24.4N 115.5E	50 LO	100 N N 890812	07:42:29	165 268 42 61
84	93	CHINA	GOMI DESERT	43.0N 118.0E	46.3N 107.3E	60 HO	100 N N 890813	06:12:30	162 213 55 76
84	94	CHINA	YELLOW RIVER	41.0N 108.5E	46.0N 107.8E	30 HO	100 N N 890813	06:12:38	162 216 55 76
84	95	CHINA	YELLOW RIVER	40.5N 106.5E		30 HO	100 N N		
87	34	CHINA	NORTHEASTERN CHINA	37.5N 116.0E	37.5N 111.6E	60 LO	100 N N 890811	07:29:57	164 251 46 45
87	35	CHINA	YELLOW RIVER	34.5N 114.0E	37.8N 112.2E	60 LO	100 N N 890811	07:30:08	164 253 46 45
87	36	CHINA	YANGTZE RIVER	32.0N 117.5E	34.0N 115.2E	30 LO	100 N N 890811	07:31:08	164 258 44 45
87	37	CHINA	YANGTZE RIVER	31.0N 117.5E	30.9N 118.0E	30 NV	100 N N 890811	07:32:09	164 263 42 45
87	38	CHINA	MOUNTAINS, CLOUDS	29.8N 119.5E	28.6N 120.0E	70 NV	100 N N 890811	07:32:54	164 266 40 45
87	39	CHINA	COASTLINE	28.0N 121.0E	27.4N 121.0E	30 NV	100 N N 890811	07:33:17	164 268 40 45
87	40	CHINA	FORMOSA STRAIT, COASTLINE	25.5N 119.5E	26.0N 122.1E	30 LO	100 N N 890811	07:33:44	165 269 39 45
87	47	CHINA	KUNLUN MOUNTAINS	36.0N 91.0E	37.4N 88.8E	40 LO	100 N N 890811	09:00:39	164 251 46 46
87	48	CHINA	LAKE DABSAI	37.8N 95.0E	34.3N 92.0E	50 LO	100 N N 890811	09:01:34	164 257 45 46
87	49	CHINA	YUN MOUNTAINS, LAKE ERH	25.5N 100.5E	27.3N 98.1E	60 LO	100 N N 890811	09:03:50	164 260 40 46
87	50	CHINA	YUN MOUNTAINS, LAKE ERH	25.5N 100.5E	26.8N 98.4E	40 LO	100 N N 890811	09:03:59	164 264 39 46
88	84	CHINA	YELLOW RIVER	35.0N 113.0E	36.3N 112.9E	20 NV	250 N N 890811	07:30:20	164 254 46 45
88	85	CHINA	YELLOW RIVER	35.0N 113.5E	36.1N 113.1E	30 NV	250 N N 890811	07:30:33	164 254 45 45
88	86	CHINA	CLOUDS		35.2N 113.4E	60	250 N N 890811	07:30:40	164 255 45 45
88	87	CHINA	CLOUDS		34.5N 114.0E	60	250 N N 890811	07:31:07	164 257 44 45
88	88	CHINA	LAKE WABU	32.0N 117.0E	32.9N 116.3E	10 NV	250 N N 890811	07:31:33	164 260 43 45
88	89	CHINA	LAKE CHAO, HEFEI	32.0N 117.5E	31.5N 117.5E	5 NV	250 N N 890811	07:32:05	164 262 42 45
88	90	CHINA	YANGTZE RIVER	31.0N 118.0E	31.2N 117.8E	10 NV	250 N N 890811	07:32:12	164 262 42 45
88	91	CHINA	YANGTZE RIVER	32.0N 120.0E	30.8N 118.1E	20 LO	250 N N 890811	07:32:19	164 263 42 45
88	92	CHINA	HANGZHOU	30.5N 120.0E	30.0N 118.8E	30 NV	250 N N 890811	07:32:35	164 264 41 45
88	93	CHINA	COASTLINE	27.5N 120.5E	29.4N 119.3E	20 LO	250 N N 890811	07:32:46	164 265 41 45
88	94	CHINA	COASTLINE	27.5N 120.5E	29.3N 119.4E	20 NV	250 N Y 890811	07:32:49	164 265 41 45
88	95	CHINA	COASTLINE	28.0N 121.0E	29.1N 119.6E	20 NV	250 N Y 890811	07:32:52	164 265 41 45
88	96	CHINA	COASTLINE	28.0N 121.0E	28.9N 119.7E	20 NV	250 N Y 890811	07:32:55	164 266 41 45
88	97	CHINA	COASTLINE	28.5N 121.5E	28.6N 120.0E	10 NV	250 N Y 890811	07:33:01	164 266 40 45
88	98	CHINA	COASTLINE	29.0N 121.5E	28.4N 120.1E	10 NV	250 N Y 890811	07:33:05	164 266 40 45

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TI	FL	E	S	DATE	GMT	SUN AL AZ EL OR
88	99	CHINA	COASTLINE	25.5N 119.5E	26.7N 121.5E	20	LO	250	N	N	890811	07:33:38	164 268 39 45
88	100	CHINA	COASTLINE	24.0N 118.0E	25.3N 122.4E	60	LO	250	N	N	890811	07:34:00	165 270 38 45
90	74	CHINA	BOHAI BAY	38.5N 117.5E	41.8N 114.1E	20	LO	250	N	N	890813	06:16:18	163 229 55 76
90	75	CHINA	BOHAI BAY	39.0N 118.0E	41.4N 114.3E	20	LO	250	N	N	890813	06:16:22	163 229 55 76
90	76	CHINA	BOHAI BAY	39.0N 119.0E	41.5N 114.4E	5	LO	250	N	N	890813	06:16:24	163 229 55 76
90	77	CHINA	LIAODONG BAY	39.5N 119.5E	41.4N 114.6E	5	LO	250	N	N	890813	06:16:27	163 229 55 76
90	78	CHINA	LIAODONG BAY	39.5N 121.5E	40.9N 115.3E	0	LO	250	N	N	890813	06:16:38	163 231 55 76
90	79	CHINA	SHANDONG PENINSULA	36.0N 120.0E	40.3N 116.8E	10	LO	250	N	N	890813	06:16:50	163 232 54 76
90	80	CHINA	YELLOW SEA COASTLINE	34.0N 120.5E	34.4N 122.5E	80	LO	250	N	N	890813	06:16:53	163 247 53 76
90	81	CHINA	YELLOW SEA COASTLINE	34.5N 119.5E	34.2N 122.7E	80	LO	250	N	N	890813	06:16:57	163 248 52 76
91	0 E	CHINA	USSR BORDER	45.5N 82.5E		20	LO	250	N	N			
91	0 F	CHINA	LAKE EBINUR	45.0N 82.5E		5	LO	250	N	N			
91	0 G	CHINA	AGRICULTURE, USSR BORDER	43.5N 81.0E		50	NV	100	N	Y			
91	0 H	CHINA	AGRICULTURE, USSR BORDER	43.5N 82.0E		60	NV	100	N	Y			
91	0 J	CHINA	LAKE BOSTEN	42.0N 84.5E		60	NV	100	N	N			
91	0 K	CHINA	TAKLIMAKAN DESERT	41.0N 80.0E		30	LO	100	N	N			
91	0 L	CHINA	LAKE SUHAI	39.0N 84.0E		30	NV	250	N	N			
91	0 M	CHINA	ALLUVIAL FAN	37.5N 93.5E		60	NV	250	N	N			
91	0 N	CHINA	LAKE DABSAN	37.0N 95.0E		5	NV	250	N	Y			
91	0 P	CHINA	LAKE DABSAN	36.5N 95.5E		10	NV	250	N	Y			
91	0 Q	CHINA	TIBET, LAKES, CLOUDS	35.0N 89.5E		70	LO	250	N	N			
91	0 R	CHINA	XICHANG	28.0N 102.0E		80	LO	250	N	N			
91	0 S	CHINA	ANNING RIVER	27.5N 102.0E		90	LO	250	N	N			
91	0 T	CHINA	MIN RIVER	30.0N 103.5E		70	LO	250	N	N			
91	0 U	CHINA	YANGTZE RIVER	28.5N 104.5E		40	LO	250	N	N			
92	0 A	CHINA	YELLOW RIVER MOUTH	33.0N 118.0E		40	HO	100	N	N			
92	0 B	CHINA	BOHAI STRAIT	39.0N 121.0E		40	HO	100	N	N			
92	0 C	CHINA	YELLOW RIVER MOUTH	38.5N 118.5E		30	LO	100	N	N			
92	0 D	CHINA	YELLOW RIVER	37.0N 117.0E		30	LO	100	N	N			
92	0 E	CHINA	BEIJING	40.0N 116.5E		40	LO	100	N	N			
92	0 F	CHINA	BOHAI BAY	38.5N 118.0E		20	LO	100	N	N			
92	0 G	CHINA	YELLOW RIVER MOUTH	38.0N 118.0E		0	LO	100	N	N			
92	0 H	CHINA	YELLOW RIVER MOUTH	37.5N 119.5E		5	LO	100	N	N			
92	0 J	CHINA	SHANDONG PENINSULA	37.0N 121.0E		20	LO	100	N	N			
92	0 K	CHINA	QINGDAO, CANGKOU	36.0N 120.0E		20	LO	100	N	N			
92	0 L	CHINA	LAIZHOU BAY	34.5N 120.0E		90	LO	100	N	N			
92	0 M	CHINA	EAST CHINA SEA COASTLINE	29.5N 121.5E		40	LO	100	N	N			
93	60	CHINA	JIANGQUAN R. HAIL PLAT.	31.0N 80.5E	30.7N 82.0E	70	NV	100	N	Y	890810	08:24:58	164 266 38 31
93	61	CHINA	LANGA L. MAPAN YUM L.	30.5N 81.0E	30.5N 82.2E	70	NV	100	N	Y	890810	08:25:01	164 267 38 31
93	62	CHINA	MAQUAN R. GANGXISE SHAN	30.0N 83.0E	29.5N 81.2E	70	LO	100	N	N	890810	08:25:26	164 268 37 31
95	24	CHINA	CIRCLE DRAINAGE, LAKES	42.0N 116.0E	41.4N 114.8E	40	LO	100	N	N	890810	07:20:15	163 249 45 29
95	25	CHINA	DAMAQUAN SHAN	41.0N 116.0E	40.8N 116.5E	50	LO	100	N	N	890810	07:20:44	163 252 44 29
95	26	CHINA	LAIZHOU BAY, YELLOW R.D.S	37.5N 119.5E	38.1N 118.7E	75	LO	100	N	N	890810	07:21:24	164 255 43 29
95	27	CHINA	LAIZHOU BAY, WEST COAST	37.5N 120.0E	37.4N 119.5E	80	LO	100	N	N	890810	07:21:40	164 257 42 29
95	28	CHINA	SHANDONG PENINSULA	37.5N 122.5E	36.8N 120.1E	75	LO	100	N	N	890810	07:21:51	164 258 42 29
95	29	CHINA	YELLOW SEA, COAST	35.5N 120.0E	36.0N 120.9E	60	NV	100	N	Y	890810	07:22:07	164 259 41 29
95	30	CHINA	YELLOW SEA, COAST	35.5N 120.0E	35.7N 121.3E	60	LO	100	N	Y	890810	07:22:15	164 260 41 29
95	31	CHINA	CHANGWEI R. EFFLUENT, CST	35.0N 120.0E	34.8N 122.2E	30	LO	100	N	Y	890810	07:22:32	164 261 40 29
95	32	CHINA	CHANGWEI R. EFFLUENT, CST	35.0N 120.0E	34.4N 122.6E	30	LO	100	N	N	890810	07:22:40	164 262 40 29
95	35	CHINA	YANGTZE R. ESTUARY, TAI L.	31.5N 122.0E	30.6N 126.0E	50	LO	100	N	N	890810	07:23:55	164 267 37 29
95	68	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N 82.0E	46.1N 84.8E	30	LO	100	N	N	890810	08:48:58	163 236 47 30
95	69	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N 82.0E	46.0N 85.0E	30	LO	100	N	N	890810	08:49:01	163 237 47 30
95	70	CHINA	TAKLA MAKAN, TIEN SHAN	43.0N 82.5E	45.4N 85.3E	30	LO	100	N	N	890810	08:49:05	163 237 47 30
95	71	CHINA	TAKLA MAKAN, TIEN SHAN	42.5N 83.0E	43.5N 86.9E	40	LO	100	N	N	890810	08:50:09	163 243 46 30
95	72	CHINA	TAKLA MAKAN, TIEN SHAN	42.5N 84.0E	43.3N 89.2E	40	LO	100	N	N	890810	08:50:04	163 244 46 30
95	73	CHINA	TAKLA MAKAN, TIEN SHAN	42.0N 84.5E	43.1N 89.4E	40	LO	100	N	N	890810	08:50:08	163 244 46 30
95	74	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N 87.0E	42.8N 89.8E	50	LO	100	N	N	890810	08:50:15	163 245 46 30
95	75	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N 87.0E	42.7N 90.0E	50	LO	100	N	N	890810	08:50:17	163 245 46 30
95	76	CHINA	BOSTEN LAKE, TIEN SHAN	42.0N 87.0E	42.6N 90.2E	50	LO	100	N	N	890810	08:50:20	163 246 46 30
95	77	CHINA	SHULE R. OUTWASH FAN	40.0N 96.5E	39.5N 94.1E	50	LO	100	N	N	890810	08:51:27	163 252 44 30
95	78	CHINA	SHULE R. OUTWASH FAN	40.5N 96.5E	39.3N 94.4E	50	LO	100	N	N	890810	08:51:31	163 253 44 30
95	79	CHINA	SHULE R. OUTWASH FAN	40.0N 96.5E	39.1N 94.6E	50	LO	100	N	N	890810	08:51:35	164 253 43 30
95	80	CHINA	SHULE R. OUTWASH FAN	40.0N 96.5E	37.9N 96.0E	50	LO	100	N	N	890810	08:52:01	164 255 43 30
95	81	CHINA	SHULE R. OUTWASH FAN	40.5N 96.5E	37.7N 96.1E	50	LO	100	N	N	890810	08:52:04	164 256 43 30
95	82	CHINA	SHULE R. OUTWASH FAN	40.5N 96.5E	37.6N 96.3E	60	LO	100	N	N	890810	08:52:07	164 256 42 30
95	83	CHINA	YANGTZE R. RING CHING MTN	32.5N 98.0E	35.0N 99.0E	90	LO	100	N	N	890810	08:53:00	164 260 41 30
95	84	CHINA	YANGTZE R. RING CHING MTN	32.5N 98.0E	34.8N 99.2E	90	LO	100	N	N	890810	08:53:03	164 261 41 30
95	85	CHINA	YANGTZE R. RING CHING MTN	32.5N 98.0E	34.7N 99.3E	90	LO	100	N	N	890810	08:53:05	164 261 40 30
95	86	CHINA	YANGTZE R. RING CHING MTN	32.5N 98.0E	33.9N 100.1E	90	LO	100	N	N	890810	08:53:22	164 262 40 30
95	87	CHINA	YANGTZE R. RING CHING MTN	32.5N 98.0E	33.7N 100.2E	90	LO	100	N	N	890810	08:53:25	164 262 40 30

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
95	88	CHINA	YANGTZE R.NING CHING MTN	32.5N 98.0E	33.5N 100.4E	90	LO	100	N	N	890818	08:33:29	164	263	40	30
95	89	CHINA	DAXUE SHAN	30.0N 101.5E	30.8N 102.0E	85	NV	100	N	N	890818	08:34:23	164	264	38	30
95	90	CHINA	DAXUE SHAN	30.0N 101.5E	30.7N 101.0E		NV	100	N	N	890818	08:34:25	164	267	38	30
95	91	CHINA	DAXUE SHAN	30.0N 101.5E	30.5N 103.2E	85	LO	100	N	N	890818	08:34:29	164	267	37	30
95	92	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N 105.0E	28.2N 105.1E	30	NV	100	N	N	890818	08:35:13	164	270	36	30
95	93	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N 105.0E	28.0N 105.2E	30	NV	100	N	N	890818	08:35:16	164	270	36	30
95	94	CHINA	YANGTZE R.SSU CHUAN BAS.	28.5N 105.0E	27.9N 105.3E	30	NV	100	N	N	890818	08:35:18	164	270	35	30
95	95	CHINA	BEIPAN R. WUMENG MTNS.	26.5N 105.5E	27.2N 105.9E	50	NV	100	N	N	890818	08:35:32	164	271	35	30
95	96	CHINA	BEIPAN R. WUMENG MTNS.	26.5N 105.5E	27.0N 106.0E	50	NV	100	N	N	890818	08:35:35	164	271	35	30
95	97	CHINA	BEIPAN R. WUMENG MTNS.	26.5N 105.5E	26.9N 106.1E	50	LO	100	N	N	890818	08:35:38	164	271	35	30
95	98	CHINA	FENG HUAN MTNS.	26.0N 107.0E	26.0N 106.8E	60	NV	100	N	N	890818	08:35:54	164	272	34	30
95	99	CHINA	FENG HUAN MTNS.	26.0N 107.0E	25.9N 106.8E	60	NV	100	N	N	890818	08:35:56	164	272	34	30
95	100	CHINA	FENG HUAN MTNS.	26.0N 107.0E		60	LO	100	N	N						
98	40	CHINA	DAMAQUIN SHAN	41.5N 115.5E	41.4N 114.7E	40	NV	250	N	Y	890818	07:20:10	163	249	45	29
98	41	CHINA	DAMAQUIN SHAN	41.0N 115.5E	41.0N 115.3E	15	NV	250	N	Y	890818	07:20:20	163	250	44	29
98	42	CHINA	DAMAQUIN SHAN,GUANTING RE	40.5N 115.5E	40.7N 115.7E	30	NV	250	N	N	890818	07:20:26	163	250	44	29
98	43	CHINA	HENG SHAN, SANGGAN R.	39.5N 113.0E	40.2N 116.3E	40	LO	250	N	N	890818	07:20:37	163	251	44	29
98	44	CHINA	YELLOW RIVER, HAZE	37.0N 118.0E	38.3N 118.5E	75	NV	250	N	Y	890818	07:21:17	164	255	43	29
98	45	CHINA	YELLOW RIVER, HAZE	37.5N 118.5E	38.0N 118.8E	75	NV	250	N	Y	890818	07:21:22	164	255	42	29
98	46	CHINA	YELLOW RIVER, HAZE	37.5N 118.5E	37.8N 119.0E	50	NV	250	N	Y	890818	07:21:26	164	254	42	29
98	47	CHINA	LAIZHOU BAY CST. NEI R.	37.0N 119.5E	37.3N 119.6E	50	NV	250	N	Y	890818	07:21:37	164	257	42	29
98	48	CHINA	LAIZHOU BAY CST. NEI R.	37.0N 119.5E	36.9N 120.0E	60	NV	250	N	Y	890818	07:21:46	164	257	42	29
98	49	CHINA	E.CHINA SEA COAST	35.5N 120.0E	36.0N 121.0E	50	LO	250	N	N	890818	07:22:04	164	259	41	29
98	50	CHINA	E.CHINA SEA, CST.CURR.	34.0N 120.5E	35.1N 121.9E	50	LO	250	N	N	890818	07:22:22	164	260	40	29
98	51	CHINA	E.CHINA SEA, CST. CURR.	33.5N 121.0E	34.6N 122.4E	45	LO	250	N	N	890818	07:22:32	164	261	40	29
98	52	CHINA	E.CHINA SEA, CST. CURR.	32.5N 121.0E	34.3N 122.7E	30	LO	250	N	N	890818	07:22:39	164	262	40	29
98	53	CHINA	YANGTZE R. DELTA, EFFL.	31.5N 122.0E	33.2N 123.8E	20	LO	250	N	N	890818	07:23:01	164	263	39	29
98	54	CHINA	YANGTZE R. DELTA, EFFL.	31.5N 121.5E	33.0N 123.9E	40	LO	250	N	N	890818	07:23:04	164	264	39	29
98	55	CHINA	YANGTZE RIVER	32.0N 126.5E	32.8N 126.1E	50	LO	250	N	N	890818	07:23:08	164	264	39	29
98	56	CHINA	HANGZHOU BAY, FUCHUN R.	32.0N 121.0E	31.2N 125.5E	40	LO	250	N	N	890818	07:23:40	164	264	38	29
98	57	CHINA	ZHOUSHAN ISLANDS, CST	30.0N 122.0E	30.9N 125.8E	40	LO	250	N	N	890818	07:23:45	164	264	37	29
98	58	CHINA	YUHUAN I. TAZHOU IS. CST	28.0N 128.5E	30.3N 126.3E	50	LO	250	N	N	890818	07:23:56	164	267	37	29
98	59	CHINA	DAXUE SHAN, ESCARPMENT	30.0N 101.5E	30.0N 103.0E	60	LO	250	N	N	890818	08:34:35	164	267	37	30
98	60	CHINA	YANGTZE R. DALLANG SHAN	27.5N 103.0E	28.5N 104.0E	40	LO	250	N	N	890818	08:35:03	164	269	36	30
98	61	CHINA	YANGTZE R. LUNAN SHAN	26.5N 103.0E	27.9N 105.3E	50	LO	250	N	N	890818	08:35:15	164	270	35	30
98	62	CHINA	LIUCHONG R. ZHEJI	27.0N 105.5E	27.4N 105.7E	20	NV	250	N	N	890818	08:35:25	164	270	35	30
98	63	CHINA	G. TONKIN, CST. ISLANDS	21.5N 100.5E	21.7N 116.2E	20	LO	250	N	N	890818	08:37:20	165	276	30	30
98	64	CHINA	G. TONKIN, CST. BEIKAI	21.5N 100.0E	21.0N 118.4E	10	LO	250	N	N	890818	08:37:24	165	276	30	30
98	65	CHINA	TIESHAN/ANPU BAYS	21.5N 100.5E	20.7N 118.6E	10	LO	250	N	N	890818	08:37:29	165	277	30	30
99	10	CHINA	TIBETAN PLAT. LANGA L.	31.5N 80.5E	32.8N 78.1E	90	HO	50	N	N	890818	10:21:45	164	263	39	31
99	11	CHINA	TIBETAN PLAT. LANGA L.	31.0N 81.0E	32.1N 78.7E	90	HO	50	N	N	890818	10:21:48	164	264	39	31
99	12	CHINA	TIBETAN PLAT. LANGA L.	30.5N 81.5E	31.7N 79.1E	90	HO	50	N	N	890818	10:21:47	164	265	39	31
99	13	CHINA	TIBETAN PLAT. LANGA L.	30.5N 82.0E	31.2N 79.6E	90	HO	50	N	N	890818	10:21:37	164	264	38	31
99	14	CHINA	TIBETAN PLAT. MAPAM L.	30.5N 83.0E	30.6N 80.1E	90	HO	50	N	N	890818	10:21:48	164	264	38	31
99	15	CHINA	TIBETAN PLAT. MAPAM L.	31.0N 81.5E	32.7N 81.7E	90	HO	50	N	N	890818	10:22:25	164	269	36	31
99	16	CHINA	TIBETAN PLAT. MAPAM L.	30.5N 81.5E	32.2N 82.1E	90	HO	50	N	N	890818	10:22:35	164	269	36	31
99	17	CHINA	TIBETAN PLAT. MAPAM L.	30.0N 81.5E	32.7N 82.4E	90	HO	50	N	N	890818	10:22:43	164	270	36	31
99	18	CHINA	TIBETAN PLAT. MAPAM L.	29.5N 81.0E	32.2N 82.9E	90	HO	50	N	N	890818	10:22:54	164	270	35	31
100	9	CHINA	IRTYSH R. AYGYRKUM DES.	48.0N 86.0E	50.6N 83.1E	50	LO	250	N	N	890812	07:32:55	162	264	52	61
100	10	CHINA	KAZ. L. SHULE HAN MTNS.	38.5N 97.5E	42.1N 98.4E	30	LO	250	N	N	890812	07:36:26	163	234	52	61
100	11	CHINA	AFLO,SHUANGCHENGZUO R.	40.5N 100.0E	41.0N 99.0E	5	LO	250	N	N	890812	07:36:50	163	237	52	61
100	12	CHINA	AFLO,SHUANGCHENGZUO R.	40.5N 100.0E	40.3N 100.7E	5	NV	250	N	N	890812	07:37:06	163	239	51	61
100	13	CHINA	HAN R. QIN MTNS.	33.0N 107.0E	32.7N 108.7E	70	LO	250	N	N	890812	07:39:41	164	254	48	61
100	14	CHINA	YANGTZE R.YUEYANG,DT. L.	29.5N 113.0E	30.4N 110.8E	25	LO	250	N	N	890812	07:40:27	164	260	46	61
100	15	CHINA	YANGTZE R.YUEYANG,DT. L.	29.5N 113.0E	29.2N 111.8E	25	LO	250	N	N	890812	07:40:49	164	262	46	61
100	16	CHINA	ZI R.YIYANG,YUAN R.DT. L.	29.0N 112.0E	27.7N 113.0E	20	LO	250	N	N	890812	07:41:18	164	264	45	61
100	17	CHINA	CST.SHANTOU,CHAOYANG	23.5N 117.0E	24.3N 115.6E	40	LO	250	N	N	890812	07:42:23	165	268	42	61
100	18	CHINA	CST.DONGSHAN,HAIRI BAY	24.0N 118.0E	23.0N 116.0E	15	LO	250	N	N	890812	07:42:32	165	268	42	61
100	19	CHINA	CST.SHANTOU,CHAOYANG	23.5N 117.0E	22.8N 116.7E	40	LO	250	N	N	890812	07:42:51	165	270	41	61
100	20	CHINA	PRATUS ISLAND	20.5N 117.0E	21.0N 117.9E	50	NV	250	N	N	890812	07:43:23	165	272	40	61
151	4	CHINA	ULUNGAR L. OERHCHISSU R.	48.0N 87.5E	48.0N 87.2E	50	LO	90	N	Y	890809	08:39:08	163	234	46	14
151	5	CHINA	ULUNGAR L. JUNGAR BASIN	47.5N 88.5E	48.4N 88.3E	50	LO	90	N	Y	890809	08:39:22	163	236	46	14
151	11	CHINA	GOMI DESERT	42.0N 100.0E	41.2N 99.0E	40	NV	90	N	N	890809	08:42:11	164	254	41	14
151	12	CHINA	GOMI DESERT	40.5N 102.0E	39.8N 101.5E	40	NV	90	N	Y	890809	08:42:41	164	257	40	14
151	13	CHINA	GOMI DESERT	40.5N 102.0E		40	LO	90	N	Y						
151	43	CHINA	TIAN SHAN, TAKLAMAKAN	40.5N 77.5E		60	HO	90	N	Y						
151	44	CHINA	TIAN SHAN, TAKLAMAKAN	39.5N 78.0E	41.7N 76.1E	50	HO	90	N	Y	890809	10:12:31	163	253	42	15
151	45	CHINA	AKASU R. TAKLAMAKAN	41.5N 81.0E	41.0N 77.0E	50	HO	90	N	Y	890809	10:12:46	164	254	41	15
151	46	CHINA	AKASU R. TAKLAMAKAN	41.0N 81.5E	40.5N 77.7E	50	HO	90	N	Y	890809	10:12:58	164	255	41	15
151	47	CHINA	TIBETAN PLAT. LAKES	33.0N 82.0E	34.6N 80.0E	70	HO	90	N	Y	890809	10:13:39	164	259	39	15

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FLE B DATE	GMT	SUN AL AZ EL OR
151	48	CHINA	TIBETAN PLAT. LAKES	34.0N 82.0E	37.4N 81.0E	78 HO	90 N Y 890809	18:13:58	164 260 38 15
151	49	CHINA	TIBETAN PLAT. LAKES	34.5N 83.0E	37.1N 81.7E	78 HO	90 N Y 890809	18:14:18	164 261 38 15
151	50	CHINA	TIBETAN PLAT. LAKES	34.0N 83.5E	34.5N 82.2E	78 HO	90 N Y 890809	18:14:21	164 262 38 15
151	51	CHINA	ALTUN SHAH TAKLAMAKAN	34.5N 85.5E		50 HO	90 N N		
151	52	CHINA	TIBETAN PLAT. LAKES	33.5N 84.0E	34.8N 84.0E	75 HO	90 N N 890809	18:14:57	164 264 36 15
151	53	CHINA	TIBETAN PLAT. LAKES	32.8N 84.0E		90 HO	90 N N		
151	54	CHINA	TIBETAN PLAT. SILING L.	31.5N 89.5E	32.4N 86.1E	85 HO	90 N N 890809	18:15:48	164 267 35 15
151	55	CHINA	TIBETAN PLAT. LAKES	28.5N 88.0E	31.1N 87.4E	85 HO	90 N N 890809	18:16:09	164 269 33 15
152	50	CHINA	PANGONG L. TIBETAN PLAT.	33.5N 79.5E	32.3N 78.5E	68 LO	250 N N 890810	18:24:16	164 264 39 31
152	51	CHINA	SUTLEJ R. TIBETAN PLAT.	32.0N 79.0E		50 NV	250 N N		
152	52	CHINA	XIANGQUAN R. TIBET PLAT.	31.5N 80.0E	31.1N 79.7E	68 NV	250 N N 890810	18:24:41	164 264 38 31
152	53	CHINA	LANG L. MAPAM YUM L.	31.0N 81.0E		68 LO	250 N Y		
152	54	CHINA	LANG L. MAPAM YUM L.	30.5N 81.0E	30.1N 80.5E	68 NV	250 N Y 890810	18:25:00	164 267 37 31
152	228	CHINA	HUANG R. KAFENGJONGXIANG	35.0N 114.5E	34.1N 113.1E	25 LO	250 N Y 890811	07:30:22	164 254 45 45
152	229	CHINA	HUANG R. KAFENGJONGXIANG	35.0N 114.0E	35.8N 113.4E	20 NV	250 N Y 890811	07:30:28	164 255 45 45
152	230	CHINA	SHANQUL MINGUAN	34.5N 115.5E	35.0N 114.3E	50 LO	250 N Y 890811	07:30:45	164 256 45 45
152	231	CHINA	SHANQUL MINGUAN	34.5N 115.5E	34.8N 114.5E	50 LO	250 N Y 890811	07:30:49	164 257 45 45
152	232	CHINA	LI R. LUOME	33.5N 114.0E	34.0N 115.5E	30 LO	250 N H 890811	07:31:45	164 258 44 45
152	233	CHINA	CHAO L. HUAI R. WABU L.	31.5N 117.0E	32.4N 116.4E	18 LO	250 N N 890811	07:31:28	164 260 43 45
152	234	CHINA	CHAO L. YANGTZE R. WUHU	31.5N 118.0E	32.5N 116.4E	15 LO	250 N N 890811	07:31:58	164 261 43 45
152	235	CHINA	YANGTZE R. NANJIANG WUHU	32.0N 118.0E	32.1N 117.0E	20 NV	250 N N 890811	07:31:42	164 261 43 45
152	236	CHINA	YANGTZE R. NANJIANG SAH R	32.5N 118.5E	31.9N 117.1E	25 LO	250 N N 890811	07:31:45	164 261 43 45
152	237	CHINA	YANGTZE R. WUCHANG L.	30.5N 117.0E	31.2N 117.7E	25 NV	250 N N 890811	07:31:58	164 262 42 45
152	238	CHINA	FUCHUN R. HANGZHOU	30.5N 120.0E	30.5N 118.4E	35 LO	250 N Y 890811	07:32:12	164 263 42 45
152	239	CHINA	FUCHUN R. HANGZHOU	30.8N 120.5E	30.5N 118.5E	30 LO	250 N Y 890811	07:32:16	164 264 42 45
152	240	CHINA	WENZHOU, COAST	28.0N 120.5E	29.4N 119.4E	40 LO	250 N N 890811	07:32:35	164 265 41 45
152	241	CHINA	HAOXIANG, YENGAN R. CST	28.5N 121.5E	29.2N 119.5E	40 LO	250 N N 890811	07:32:39	164 265 41 45
152	242	CHINA	HAOXIANG, YENGAN R. CST	29.5N 121.5E	29.0N 119.7E	70 LO	250 N N 890811	07:32:42	164 266 41 45
152	243	CHINA	WENZHOU, COAST	27.5N 120.0E	28.4N 120.0E	40 NV	250 N N 890811	07:32:50	164 266 40 45
152	244	CHINA	WENZHOU, HUAN L. COAST	28.5N 121.0E	28.4N 120.2E	40 LO	250 N N 890811	07:32:54	164 266 40 45
152	245	CHINA	WENZHOU, HUAN L. COAST	28.8N 121.0E	27.8N 121.3E	30 NV	250 N Y 890811	07:33:29	164 268 39 45
152	246	CHINA	WENZHOU, COAST	27.5N 120.5E	26.8N 121.4E	40 NV	250 N Y 890811	07:33:24	164 268 39 45
152	247	CHINA	COAST	27.5N 120.5E	26.4N 121.5E	40 LO	250 N Y 890811	07:33:27	164 269 39 45
153	59	CHINA	XAR MORON R. LAOKA R.	42.5N 120.0E	42.4N 121.0E	40 LO	90 N N 890812	06:06:09	163 234 52 60
153	60	CHINA	XAR MORON R. LAOKA R.	42.8N 120.0E	42.1N 121.4E	50 LO	90 N N 890812	06:06:15	163 235 52 60
153	67	CHINA	GOMI DESERT, PAERKHU MTN	43.5N 93.5E	44.8N 94.5E	25 LO	90 N N 890812	07:35:42	163 226 53 61
153	68	CHINA	GOMI DESERT, PAERKHU MTN	43.0N 97.5E	43.1N 97.1E	20 NV	90 N N 890812	07:36:24	163 232 52 61
153	69	CHINA	YANGTZE R. LAKE AREA	29.5N 112.0E	29.5N 111.7E	70 NV	90 N N 890812	07:41:06	164 261 46 61
153	70	CHINA	COAST, CHIN-MEN	25.0N 118.0E	24.8N 115.8E	60 LO	90 N N 890812	07:42:47	165 269 42 61
153	71	CHINA	COAST	24.0N 116.5E	23.2N 116.4E	60 NV	90 N N 890812	07:43:02	165 270 41 61
153	74 B	CHINA	YANGTZE R. LAKE AREA	31.0N 113.0E		90 LO	90 N N		
71	9	CLOUDS	CLOUDS		1.3N 23.9E	100 HO	100 N N 890808	16:19:10	164 286 4 3
71	10	CLOUDS	CLOUDS		0.5N 23.4E	100 HO	100 N N 890808	16:19:24	164 286 3 3
71	11	CLOUDS	CLOUDS		0.4S 23.9E	100 HO	100 N N 890808	16:19:38	164 286 2 3
71	66	CLOUDS	CLOUDS		44.0N 158.4E	100 HO	100 O N 890808	21:50:19	161 183 36 7
71	67	CLOUDS	CLOUDS		44.6N 159.2E	100 HO	100 O H 890808	21:50:32	161 184 36 7
71	68	CLOUDS	CLOUDS		45.3N 160.3E	100 HO	100 O N 890808	21:50:48	161 185 37 7
71	69	CLOUDS	CLOUDS		45.9N 161.3E	100 HO	100 N N 890808	21:51:02	161 187 37 7
75	96	CLOUDS	CLOUDS		7.5N 78.3W	100 U	N N 890809	11:13:24	161 74 6 16
75	97	CLOUDS	CLOUDS		8.0N 78.4W	100 U	N N 890809	11:13:50	161 74 1 16
81	68	CLOUDS	CLOUDS			80 HO	100 N N		
83	33	CLOUDS	CLOUDS, ORBITER TAIL			100 HO	100 N N		
83	31	CLOUDS	CLOUDS, ORBITER TAIL			100 HO	100 N N		
84	8 J	CLOUDS	CLOUDS			80	100 N N		
86	99	CLOUDS	CLOUDS			90 HO	100 O N		
86	100	CLOUDS	CLOUDS			90 HO	100 O N		
86	101	CLOUDS	CLOUDS			90 HO	100 O N		
87	44	CLOUDS	CLOUDS		38.1N 24.5W	90	100 O N 890811	08:39:04	161 86 28 46
87	47	CLOUDS	CLOUDS, AIRFIELD		47.7N 11.2E	90	250 N N 890811	07:11:58	161 190 38 45
95	15	CLOUDS	TROPICAL STORM, CONV. CELL		6.5N 79.7W	100 HO	100 N Y 890809	22:28:09	165 285 15 23
95	16	CLOUDS	TROPICAL STORM, CONV. CELL		6.1N 79.5W	100 HO	100 N Y 890809	22:28:17	165 285 15 23
95	17	CLOUDS	TROPICAL STORM, CONV. CELL		5.2N 79.8W	100 HO	100 N Y 890809	22:28:33	165 285 14 23
95	18	CLOUDS	TROPICAL STORM, CONV. CELL		4.5N 78.5W	HO	100 N Y 890809	22:28:46	165 285 13 23
95	19	CLOUDS	TROPICAL STORM, CONV. CELL		2.9N 77.6W	100 HO	100 N N 890809	22:29:14	165 285 12 23
95	20	CLOUDS	TROPICAL STORM, CONV. CELL		0.9N 76.5W	100 HO	100 N N 890809	22:29:50	165 286 18 23
153	74 S	CLOUDS	STORMS, CONV. CELLS			90 LO	90 N N		
90	43	COLOMBIA	MOUNTAINS, CLOUDS		2.6N 77.6W	70	250 N N 890812	21:23:43	165 285 28 70
90	44	COLOMBIA	MOUNTAINS, CLOUDS		1.8N 77.1W	70	250 N N 890812	21:23:57	165 286 27 70
95	21	COLOMBIA	AMAZON R. TROP. STORM	2.0S 72.0W	1.5S 74.9W	60 LO	100 N Y 890809	22:30:38	165 286 8 23
95	22	COLOMBIA	TROP. STORM, CONV. CELLS	1.0S 74.0W	2.7S 74.4W	75 LO	100 N Y 890809	22:30:55	165 286 7 23

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT	LONG	NADIR LAT	LONG	CC	TL	FLE	S	DATE	GMT	SUN AL	AZ	EL	OR	
74	58	CRETE	WESTERN END	35.5N	24.0E	34.0N	22.5E	5	NV	250	N	N	890811	13:32:52	164	255	46	48
94	60	CRETE	CENTRAL AREA	35.0N	25.0E	34.7N	28.3E	15	LO	250	N	N	890810	13:23:51	164	257	43	33
94	61	CRETE	WESTERN AREA	35.5N	24.5E	34.5N	28.5E	15	LO	250	N	N	890810	13:23:54	164	257	43	33
71	183	CUBA	WESTERN END	22.5N	83.0W	22.5N	82.5W	60	NV	100	N	Y	890804	22:14:33	165	278	25	7
71	184	CUBA	WESTERN END	22.5N	83.5W	22.0N	82.3W	60	NV	100	N	Y	890804	22:14:38	165	278	24	7
71	185	CUBA	WESTERN END	22.5N	83.5W	22.5N	81.8W	60	NV	100	N	Y	890804	22:14:50	165	278	24	7
76	67	CUBA	ENSENADA DE CORTES	22.5N	83.5W	24.9N	83.7W	40	LO	250	N	N	890806	22:14:06	165	276	26	7
76	68	CUBA	PENINSULA DE ZAPATA	22.5N	82.8W	24.2N	83.2W	30	LO	250	N	N	890806	22:14:14	165	277	25	7
76	69	CUBA	BAHIA DE CARDENAS	23.0N	81.5W	23.4N	82.6W	30	LO	250	N	N	890806	22:14:29	165	278	25	7
76	70	CUBA	CIENFUEGOS-LOMA SAN JUAN	22.0N	80.5W	22.9N	82.3W	20	LO	250	N	N	890806	22:14:38	165	278	24	7
76	71	CUBA	GOLFO DE GUACANAYABO	20.5N	77.5W	21.4N	81.2W	40	LO	250	N	N	890806	22:15:05	165	279	23	7
94	62	CYPRUS	LIMASSOL WEST END	35.0N	33.0E	35.4N	29.7E	10	LO	250	N	N	890810	13:24:19	164	259	42	33
94	63	CYPRUS	LIMASSOL U.K.SBA AREA	34.5N	33.0E	33.2N	31.8E	5	LO	250	N	N	890810	13:25:02	164	262	40	33
152	197	CZECHOSLOVAKIA	PRAGUE, VLTAVA R. AGR.	50.0N	15.0E	49.9N	15.0E	50	NV	250	N	N	890811	07:12:44	161	106	32	45
89	54	DENMARK	NORTH SEA COASTLINE	55.0N	8.5E	54.1N	8.1E	90	NV	100	N	N	890810	11:44:30	162	184	49	32
84	1	DENMARK	NORTHERN TIP	57.5N	10.5E	56.9N	7.6E	40	LO	100	N	N	890812	10:29:16	161	157	46	63
83	75	DENMARK	SW COAST	55.5N	8.5E	56.0N	8.9E	90	NV	100	N	N	890810	11:44:32	162	185	50	32
94	3	DENMARK	SKAGEN-PENINSULA LAESO I	57.5N	10.5E	56.2N	14.9E	40	LO	250	N	N	890812	10:30:22	161	167	48	63
85	24	DENMARK	BORNHOLM I. BALTIC SEA	55.0N	15.0E	55.2N	18.0E	70	LO	100	N	N	890810	08:34:05	161	133	43	50
153	74	DENMARK	NO. TIP. LAESO I	57.5N	9.5E			80	HO	90	N	N						
75	100	DOMINICAN REPUBLIC	UNDEREXPOSED	20.0N	71.5W	19.4N	71.9W	30	LO	100	U	N	890809	11:16:59	161	77	11	16
75	101	DOMINICAN REPUBLIC	NORTHERN COASTLINE	20.0N	71.5W	19.3N	71.7W	30	NV	100	N	N	890809	11:17:06	161	77	11	16
77	49	DOMINICAN REPUBLIC	NORTHERN COASTLINE	20.0N	71.5W	20.0N	71.5W	5	NV	250	U	N	890809	11:17:04	161	77	11	16
90	82	EAST CHINA SEA	SUNGLINT			30.2N	126.3E	5		250	N	N	890813	06:19:15	164	256	51	76
74	60	EGYPT	ALEXANDRIA	31.0N	30.0E	30.6N	26.4E	5	LO	250	N	N	890811	13:34:15	164	262	43	49
74	61	EGYPT	NILE RIVER DELTA	30.5N	30.5E	30.3N	26.7E	5	LO	250	N	N	890811	13:34:22	164	263	43	49
74	62	EGYPT	CAIRO, NILE RIVER DELTA	30.0N	31.0E	29.6N	27.2E	0	LO	250	N	N	890811	13:34:34	164	264	42	49
74	63	EGYPT	CAIRO, NILE RIVER DELTA	30.0N	31.0E	28.9N	27.8E	0	LO	250	N	N	890811	13:34:48	164	265	42	49
74	64	EGYPT	NILE RIVER, ASYUT	27.0N	31.0E	26.7N	29.6E	0	NV	250	N	N	890811	13:35:31	165	268	40	49
74	65	EGYPT	ASWAN DAM, LAKE NASSER	24.0N	33.0E	24.1N	31.5E	0	NV	250	N	N	890811	13:34:19	165	271	34	49
78	21	EGYPT	SINAI PENINSULA	28.0N	34.5E	32.5N	40.2E	5	LO	250	N	N	890809	13:16:45	164	267	35	17
78	22	EGYPT	SINAI PENINSULA	28.5N	34.5E	32.1N	40.5E	5	LO	250	N	N	890809	13:16:52	164	267	35	17
81	37	EGYPT	GREAT SAND SEA	24.5N	25.5E	25.2N	23.2E	0	LO	100	N	N	890809	14:49:57	169	273	39	18
94	74	EGYPT	WADI ARISH, MT HALAL	30.5N	34.5E	28.7N	35.7E	0	LO	250	N	Y	890810	13:26:50	164	264	37	33
94	78	EGYPT	SINAI PEN. DUST STORM/PAN	28.5N	34.5E			5	HO	250	N	N						
94	79	EGYPT	SINAI PEN. DUST STORM/PAN	29.0N	34.0E			5	HO	250	N	N						
94	80	EGYPT	SINAI PEN. DUST STORM/PAN	29.0N	34.0E			5	HO	250	N	N						
97	8	EGYPT	NILE DELTA, ALEXANDRIA	31.0N	31.0E			5	LO	100	N	N						
97	8	EGYPT	NILE DELTA, ALEXANDRIA	31.0N	30.5E			0	LO	100	N	N						
97	8	EGYPT	NILE DELTA, CAIRO, SUEZ CA	30.5N	32.0E			5	LO	100	N	N						
97	8	EGYPT	SUEZ CANAL, CAIRO, G. SUEZ	30.0N	32.5E			5	LO	100	N	N						
97	8	EGYPT	CAIRO, NILE, RISMEDIA CA.	30.0N	31.0E			0	LO	100	N	N						
97	8	EGYPT	SINAI PEN. RED SEA, PAN.	29.0N	34.0E			10	HO	100	N	N						
97	8	EGYPT	SINAI PEN. PANORAMA	29.5N	34.5E			10	HO	100	N	N						
97	8	EGYPT	SINAI PEN. PANORAMA	29.0N	34.0E			10	HO	100	N	N						
74	66	ETHIOPIA	SANDSTORM	16.0N	39.0E	16.4N	36.8E	20	LO	250	N	N	890811	13:38:42	165	278	32	49
74	67	ETHIOPIA	SANDSTORM	15.5N	39.0E	15.5N	37.3E	30	LO	250	N	N	890811	13:38:57	165	279	32	49
78	96	ETHIOPIA	LAKE RUDOLF, FIRES, SMOKE	4.5N	36.0E	5.6N	35.7E	5	NV	250	N	N	890809	14:55:42	171	285	13	18
81	42	ETHIOPIA	CLOUDS			6.6N	35.1E	70		100	N	N	890809	14:55:37	171	285	14	18
83	8	ETHIOPIA	CLOUDS, SMOKE			13.0N	34.9E	70		100	N	N	890811	13:39:48	165	280	30	49
83	25	EUROPE	CLOUDS			52.1N	13.1E	60		100	N	N	890812	07:22:11	160	104	32	61
83	2	EUROPE	CLOUDS			54.1N	25.2E	40		100	N	N	890812	10:31:56	162	183	51	63
87	24	EUROPE	CLOUDS			46.9N	9.6E	90		100	N	N	890811	07:11:29	161	99	29	45
88	35	FED REP OF GERMANY	ELBE RIVER	54.0N	9.0E	55.8N	9.6E	47	LO	100	N	N	890810	11:44:44	162	187	50	32
88	46	FED REP OF GERMANY	ALPS	47.5N	13.0E	47.1N	9.9E	70	LO	250	N	N	890811	07:11:41	161	99	29	45
89	63	FED REP OF GERMANY	HAMNOVER	52.5N	9.5E	54.0N	12.4E	5	LO	250	N	N	890813	07:31:23	160	110	32	77
91	5	FED REP OF GERMANY	WILHELMSHAVEN	53.5N	8.0E	54.9N	7.7E	20	LO	250	N	N	890813	09:04:36	160	131	39	78
91	6	FED REP OF GERMANY	EAST FRISIAN ISLANDS	53.0N	7.5E	54.9N	8.4E	20	LO	250	N	N	890813	09:04:42	160	131	40	78
93	74	FED REP OF GERMANY	ELBE R., WESER R. CST.	54.0N	7.5E	54.2N	7.3E	60	LO	100	N	N	890810	11:44:18	162	183	49	32
93	76	FED REP OF GERMANY	ELBE R./WESER RESTUARIES	54.0N	7.5E	55.8N	9.8E	60	LO	100	N	N	890810	11:44:41	162	187	50	32
93	77	FED REP OF GERMANY	ELBE R./WESER RESTUARIES	54.0N	8.5E	55.7N	10.8E	40	LO	100	N	N	890810	11:44:50	162	188	50	32
94	38	FED REP OF GERMANY	AIRFIELDS, MOSEL R. AGR.	50.5N	6.5E	50.1N	7.7E	80	LO	250	N	N	890810	13:18:39	163	221	50	33
94	39	FED REP OF GERMANY	AIRFIELDS, MOSEL R. AGR.	50.0N	6.5E	50.1N	7.9E	80	LO	250	N	N	890810	13:18:41	163	221	50	33
94	40	FED REP OF GERMANY	INN R. SALZACH R. AGR.	48.5N	12.5E	48.4N	11.5E	50	LO	250	N	N	890810	13:19:26	163	227	49	33
99	19	FED REP OF GERMANY	EMS/WESER/ELBE ESTUARIES	53.0N	8.0E	54.2N	7.5E	75	HO	50	N	N	890810	11:44:09	162	183	49	32
99	20	FED REP OF GERMANY	EMS/WESER/ELBE ESTUARIES	53.0N	9.5E	55.9N	9.6E	80	HO	50	N	N	890810	11:44:28	162	187	50	32
151	249	FED REP OF GERMANY	NORTH PLAINS	52.5N	8.5E			60	LO	90	N	N						
151	249	FED REP OF GERMANY	NORTH PLAINS	52.0N	10.0E			70	LO	90	N	N						
151	250	FED REP OF GERMANY	WILHELMSHAVEN MARIENSIEL	53.0N	8.5E			80	LO	90	N	N						
152	193	FED REP OF GERMANY	NEW AIRFIELD			47.6N	11.0E	95	LO	250	N	Y	890811	07:11:44	161	100	30	45

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
152	184	FED REP. OF GERMANY	TWO STRIP AIRFIELD			95 LO	250 N Y			
151	19	FINLAND	GULF OF BOTHNIA-COASTS	61.9N 20.0E 56.0N 14.0E	80 HO	90 N N	890809	10:01:30	161 156 47	15
151	20	FINLAND	STOCKHOLM, TURKU	60.5N 22.0E 57.0N 17.4E	80 HO	90 N N	890809	10:02:00	161 161 48	15
75	17	FRANCE	PYRENEES	43.0N 1.0E 45.0N 1.1W	30 LO	100 N N	890809	08:24:28	161 103 35	14
75	18	FRANCE	GIROUDE RIVER	45.5N 0.5W 45.7N 0.1E	0 NV	100 N N	890809	08:24:46	161 104 35	14
75	19	FRANCE	EAST OF PARIS	48.5N 4.5E 48.0N 4.3E	20 NV	100 N Y	890809	08:25:43	161 110 38	14
75	20	FRANCE	EAST OF PARIS	49.0N 4.5E 48.0N 5.0E	30 LO	100 N Y	890809	08:26:03	161 112 38	14
75	54	FRANCE	ENGLISH CHANNEL	48.5N 1.5W 54.5N 1.4W	70 HO	100 N N	890809	09:50:30	161 133 44	15
77	53	FRANCE	ENGLISH CHANNEL	49.5N 1.0W 57.1N 0.5W	60 HO	250 N N	890809	11:33:20	162 168 48	16
77	54	FRANCE	ENGLISH CHANNEL	49.5N 0.5E 57.1N 1.1E	60 HO	250 N N	890809	11:33:43	162 170 48	16
78	50	FRANCE	LORIENT	48.0N 3.5W 49.5N 5.1W	20 LO	250 N N	890809	14:41:05	165 230 47	18
78	51	FRANCE	LORIENT	47.5N 3.5W 49.2N 5.3W	0 LO	250 N N	890809	14:41:13	165 231 47	18
78	52	FRANCE	GIROUDE RIVER	46.0N 1.5W 48.4N 4.0W	5 LO	250 N N	890809	14:41:29	166 233 47	18
78	53	FRANCE	BAIE DE BOURGNEUF	47.0N 2.0W 48.2N 3.3W	5 NV	250 N N	890809	14:41:39	166 235 46	18
78	54	FRANCE	LE HAVRE	49.5N 0.0 47.6N 2.1W	5 LO	250 N N	890809	14:41:54	166 237 46	18
78	55	FRANCE	GIROUDE RIVER, SUNGLINT	45.5N 1.5W 46.5N 0.1W	0 LO	250 N N	890809	14:42:22	166 240 45	18
78	56	FRANCE	GIROUDE RIVER, SUNGLINT	45.5N 1.5W 46.1N 0.3E	0 LO	250 N N	890809	14:42:31	166 241 45	18
78	57	FRANCE	PUY DE SANCY	45.0N 3.0E 44.9N 2.5E	30 NV	250 N N	890809	14:42:50	166 244 44	18
78	58	FRANCE	GULF OF LION	43.5N 4.0E 44.4N 3.3E	5 NV	250 N Y	890809	14:43:12	166 245 44	18
78	59	FRANCE	GULF OF LION	43.5N 4.0E 44.0N 3.9E	5 NV	250 N Y	890809	14:43:20	166 246 44	18
78	60	FRANCE	RHONE RIVER	43.5N 4.5E 43.9N 4.1E	5 NV	250 N Y	890809	14:43:24	166 247 44	18
78	61	FRANCE	RHONE RIVER	43.5N 4.5E 43.7N 4.3E	5 NV	250 N Y	890809	14:43:27	166 247 44	18
78	62	FRANCE	RHONE RIVER	43.5N 5.0E 43.6N 4.6E	5 NV	250 N Y	890809	14:43:31	166 247 44	18
78	63	FRANCE	RHONE RIVER	43.5N 5.0E 43.4N 4.8E	5 NV	250 N Y	890809	14:43:35	166 248 43	18
78	64	FRANCE	MARSEILLE	43.5N 5.0E 43.3N 5.0E	0 NV	250 N Y	890809	14:43:38	166 248 43	18
78	65	FRANCE	MARSEILLE	43.5N 5.0E 43.1N 5.2E	0 NV	250 N Y	890809	14:43:41	166 248 43	18
78	66	FRANCE	MARSEILLE	43.0N 5.5E 43.0N 5.4E	0 NV	250 N Y	890809	14:43:44	166 249 43	18
78	67	FRANCE	MARSEILLE, TOULON	43.0N 5.5E 42.8N 5.6E	0 NV	250 N Y	890809	14:43:48	167 249 43	18
78	68	FRANCE	TOULON	43.0N 6.0E 42.6N 5.9E	5 NV	250 N Y	890809	14:43:52	167 250 43	18
78	69	FRANCE	SAINT-TROPEZ, HYERES	43.0N 6.5E 42.4N 6.2E	5 NV	250 N Y	890809	14:43:57	167 250 43	18
78	70	FRANCE	SAINT-TROPEZ	43.0N 6.5E 42.1N 6.6E	5 NV	250 N Y	890809	14:44:03	167 251 43	18
78	71	FRANCE	TOULON, HYERES	43.0N 6.5E 41.7N 7.2E	5 LO	250 N N	890809	14:44:13	167 252 42	18
78	72	FRANCE	CORSICA, SARDINIA	41.5N 9.0E 40.2N 9.1E	5 LO	250 N N	890809	14:44:46	167 255 41	18
81	17	FRANCE	BRITTANY	48.0N 2.5W 48.6N 4.0W	30 NV	100 N N	890809	14:41:42	166 233 47	18
81	18	FRANCE	GIROUDE RIVER	45.5N 1.0W 45.5N 1.5E	20 LO	100 N N	890809	14:42:58	166 243 45	18
81	19	FRANCE	MARSEILLE	43.5N 5.0E 43.0N 4.1E	5 NV	100 N Y	890809	14:43:37	166 247 44	18
81	20	FRANCE	MARSEILLE	43.5N 5.5E 43.5N 4.7E	5 NV	100 N Y	890809	14:43:46	166 248 43	18
81	21	FRANCE	MARSEILLE	43.5N 6.0E 43.3N 4.9E	20 NV	100 N Y	890809	14:43:49	166 248 43	18
81	22	FRANCE	CORSICA	42.5N 9.0E 42.7N 5.8E	10 LO	100 N N	890809	14:44:03	167 249 43	18
81	23	FRANCE	CORSICA	42.0N 9.0E 42.5N 6.1E	10 LO	100 N N	890809	14:44:09	167 250 43	18
87	20	FRANCE	MEDITERRANEAN COASTLINE	44.0N 6.0E 42.9N 3.3E	30 LO	100 N N	890811	07:09:55	161 92 25	45
87	21	FRANCE	MEDITERRANEAN COASTLINE	44.0N 5.0E 43.1N 3.5E	5 NV	100 N Y	890811	07:09:59	161 92 25	45
87	22	FRANCE	MEDITERRANEAN COASTLINE	44.0N 4.5E 43.2N 3.8E	10 NV	100 N Y	890811	07:10:03	161 92 25	45
88	37	FRANCE	SPAIN, ANDORRA	42.5N 2.0E 41.8N 1.8E	5 NV	250 N Y	890811	07:09:38	161 90 23	45
88	39	FRANCE	SPAIN, MEDITERRANEAN SEA	42.5N 3.0E 42.2N 2.3E	30 NV	250 N N	890811	07:09:47	161 91 24	45
88	40	FRANCE	ALPS	44.5N 6.5E 44.0N 4.9E	20 NV	250 N Y	890811	07:10:28	161 93 26	45
88	41	FRANCE	ALPS	44.5N 6.5E 44.2N 5.2E	40 NV	250 N Y	890811	07:10:33	161 94 26	45
89	53	FRANCE	CORSICA	42.0N 9.0E 40.9N 8.2E	30 NV	250 N N	890813	05:55:04	160 82 14	76
95	43	FRANCE	SEINE R. AGR. COAST	49.5N 1.0E 49.8N 0.4E	0 NV	100 N N	890810	08:34:54	161 110 36	30
95	44	FRANCE	SEINE R. AGR. COAST	49.5N 1.0E 50.0N 0.7E	75 NV	100 N N	890810	08:35:02	161 110 36	30
95	45	FRANCE	SEINE R. AGR. COAST	49.5N 1.0E 50.2N 1.1E	80 NV	100 N N	890810	08:35:07	161 111 36	30
97	1	FRANCE	NW COAST AREA-FINISTERE	48.5N 4.5W 46.5N 7.0W	30 LO	250 N N	890810	14:50:43	163 233 48	34
97	2	FRANCE	NW COAST AREA-FINISTERE	48.0N 4.5W 46.1N 7.1W	40 LO	250 N N	890810	14:50:54	163 235 48	34
97	3	FRANCE	W. CST. AREA, ST. NAZAIRE	47.5N 2.5W 45.5N 6.2W	40 LO	250 N N	890810	14:51:07	163 236 48	34
98	69	FRANCE	ST. LO, NORMANDY	49.0N 1.0W 49.2N 1.1W	30 NV	250 N N	890810	08:34:36	161 108 35	30
98	70	FRANCE	SEINE R. ROUEN	49.5N 1.0E 49.6N 0.3W	60 NV	250 N Y	890810	08:34:46	161 109 36	30
98	71	FRANCE	SEINE R. ROUEN	49.5N 1.0E 49.9N 0.5E	60 NV	250 N Y	890810	08:34:55	161 110 36	30
98	72	FRANCE	SOMME R. EST, ABBEVILLE	50.0N 1.5E 50.3N 1.5E	50 NV	250 N N	890810	08:35:08	161 111 36	30
98	73	FRANCE	LILLE, CANALS, AGR.	50.5N 2.5E 50.7N 2.4E	40 NV	250 N N	890810	08:35:20	161 113 37	30
151	169	FRANCE	CORSICA, SARDINIA, ITALY	42.5N 8.5E 41.1N 7.8E	25 LO	90 N Y	890809	14:44:27	167 253 42	18
152	124	FRANCE	BRITTANY, CH. ISLANDS	49.5N 3.5W 47.0N 8.8W	50 LO	250 N N	890810	14:50:34	163 232 48	34
152	125	FRANCE	BRITTANY, CH. ISLANDS	48.5N 2.5W 46.5N 7.8W	60 LO	250 N N	890810	14:50:47	163 233 48	34
152	126	FRANCE	BRITTANY, BISCAY COAST	48.0N 2.0W 45.7N 6.5W	60 LO	250 N N	890810	14:51:06	163 236 48	34
152	127	FRANCE	BISCAY COAST	46.5N 0.5E 44.8N 5.0W	75 LO	250 N N	890810	14:51:28	163 238 48	34
152	189	FRANCE	MARSEILLE, RHONE R. CST	43.0N 5.0E 42.8N 3.2E	5 LO	250 N Y	890811	07:09:49	161 91 24	45
152	190	FRANCE	MARSEILLE, RHONE R. CST	43.0N 5.5E	5 LO	250 N Y				
153	64	FRANCE	G. LION, RHONE VALLEY	45.0N 3.0E 47.0N 3.2E	60 LO	90 N N	890812	07:10:59	160 85 25	61
153	65	FRANCE	ALPS, MED. CST, RHONE VAL.	46.0N 5.0E 47.5N 3.0E	60 LO	90 N N	890812	07:20:10	160 86 26	61
153	66	FRANCE	ALPS, PO BASIN, RHONE VAL.	47.0N 7.0E 48.4N 4.7E	60 LO	90 N N	890812	07:20:33	160 87 27	61
152	255	GERMAN DEMOCRATIC R	SAALER BAY, THE GRABOW	54.5N 12.5E	25 LO	250 N N				

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
74	52	GREECE	PELOPONNESUS PENINSULA	37.0N 21.5E	37.3N 19.3E	18 LO	250 N H 890811	13:31:40	164 249 47 49
74	53	GREECE	PELOPONNESUS PENINSULA	36.0N 23.0E	37.4N 19.4E	5 LO	250 N H 890811	13:31:56	164 250 47 49
74	54	GREECE	PELOPONNESUS PENINSULA	36.5N 22.5E	37.4N 19.8E	5 LO	250 N H 890811	13:32:00	164 250 47 49
74	55	GREECE	PELOPONNESUS PENINSULA	36.5N 21.5E	36.8N 20.5E	18 NV	250 N H 890811	13:32:12	164 252 47 49
74	56	GREECE	KIRTHA ISLAND	36.0N 23.0E	36.2N 21.1E	5 LO	250 N H 890811	13:32:25	164 253 46 49
74	57	GREECE	PELOPONNESUS PENINSULA	36.5N 22.0E	35.3N 22.0E	18 NV	250 N H 890811	13:32:42	164 254 46 49
96	53	GREECE	KERKIRA I. KERKIRAS CHAN	39.5N 20.0E	42.7N 21.0E	25 LO	250 N H 890810	13:21:43	163 244 46 33
96	54	GREECE	CST. LEVKAS I. ITHAKI I.	38.5N 21.0E	42.5N 21.3E	38 LO	250 N H 890810	13:21:47	163 245 46 33
96	55	GREECE	PATRAIKOS BAY. PATRAI	38.0N 22.0E	42.0N 22.0E	38 LO	250 N H 890810	13:22:00	163 246 46 33
96	56	GREECE	KORINTHIAKOS BAY	38.8N 22.5E	41.9N 22.7E	48 LO	250 N H 890810	13:22:02	163 246 46 33
96	57	GREECE	LAKONIKOS BAY. SPARTI	36.5N 22.5E	38.9N 25.9E	28 LO	250 N H 890810	13:23:07	164 253 44 33
96	58	GREECE	AEGEAN SEATINOS LEDDY	37.5N 25.0E	37.4N 27.2E	8 LO	250 N Y 890810	13:23:30	164 255 43 33
96	59	GREECE	AEGEAN SEALANDROS I.	37.5N 25.0E	37.4N 27.4E	5 LO	250 N Y 890810	13:23:34	164 255 43 33
94	69	GUATEMALA	RIO MOTAGUA VALLEY	16.0N 89.5W	19.1N 87.6W	80 LO	250 N H 890812	21:18:42	163 273 41 70
86	92	GUINEA	COASTLINE. SIERRA LEONE	9.0N 13.5W	8.9N 12.3W	70 LO	100 O H 890812	16:50:18	165 282 32 35
81	88	GUYANA	ESSEQUIBO RIVER	6.0N 59.0W	9.5N 58.5W	48 NV	100 N Y 890809	20:54:58	165 284 18 22
81	89	GUYANA	GEORGETOWN. ESSEQUIBO R.	7.0N 58.5W	9.0N 58.2W	40 NV	100 N Y 890809	20:57:00	165 284 17 22
81	90	GUYANA	COURANTYNE RIVER	6.5N 57.5W	8.0N 57.6W	30 LO	100 N H 890809	20:57:18	165 284 16 22
82	82	GUYANA	GEORGETOWN	7.0N 58.5W	7.7N 57.4W	18 NV	250 N H 890809	20:57:18	165 284 16 22
82	83	GUYANA	BERBICE RIVER	6.5N 57.5W	7.3N 57.2W	5 NV	250 N H 890809	20:57:17	165 284 16 22
82	85	GUYANA	ESSEQUIBO R. GEORGETOWN	7.0N 58.5W	5.7N 56.2W	30 LO	250 N H 890809	20:57:47	165 285 14 22
82	86	GUYANA	ESSEQUIBO R. GEORGETOWN	6.5N 58.0W	5.4N 56.1W	20 LO	250 N H 890809	20:57:51	165 285 14 22
82	87	GUYANA	BERBICE RIVER	6.0N 57.5W	4.7N 55.7W	10 LO	250 N H 890809	20:58:04	165 285 13 22
75	88	HAITI	UNDEREXPOSED	18.5N 72.0W	17.1N 73.4W	50 LO	100 U H 890809	11:16:17	161 76 8 16
75	89	HAITI	UNDEREXPOSED	19.5N 72.0W	18.1N 72.8W	50 LO	100 U H 890809	11:16:35	161 76 8 16
77	48	HAITI	NORTHERN COASTLINE	19.5N 72.0W	19.3N 71.6W	10 NV	250 U H 890812	11:17:00	161 77 11 16
98	39	HONDURAS	ISLAS DE LA BAHIA	16.5N 86.5W	17.9N 85.8W	18 NV	250 N H 890812	21:19:07	165 275 40 70
98	40	HONDURAS	BAHIA DE TRUJILLO	16.0N 86.0W	17.3N 86.4W	25 NV	250 N H 890812	21:19:17	165 275 40 70
94	70	HONDURAS	HONDURAS GULF. FONSECA G	14.5N 88.0W	18.7N 87.3W	80 LO	250 N H 890812	21:18:49	165 274 41 70
94	71	HONDURAS	GULF OF FONSECA	14.0N 87.0W	16.9N 86.2W	45 LO	250 N H 890812	21:19:22	165 275 40 70
75	89	INDIA	BRAHMAPUTRA RIVER	26.0N 90.0E	26.7N 91.0E	98 NV	100 N H 890809	10:17:46	165 274 38 15
77	33	INDIA	BRAHMAPUTRA RIVER	27.0N 94.5E	23.6N 93.3E	50 LO	250 N H 890809	10:18:38	165 276 27 15
77	34	INDIA	BRAHMAPUTRA RIVER	26.5N 93.5E	21.5N 94.9E	48 LO	250 N H 890809	10:18:18	165 278 25 15
77	79	INDIA	COASTLINE	18.5N 73.0E	18.6N 73.8E	78 NV	250 N H 890809	11:54:43	165 280 23 16
77	80	INDIA	PENNER RIVER	14.0N 78.0E	14.3N 76.3E	50 LO	250 N H 890809	11:51:52	165 282 20 16
77	81	INDIA	PULICAT LAKE	13.5N 79.5E	14.3N 76.4E	58 LO	250 N H 890809	11:51:57	165 282 20 16
77	82	INDIA	PULICAT LAKE	13.5N 80.0E	14.3N 76.5E	30 LO	250 N H 890809	11:52:00	165 282 20 16
77	83	INDIA	EASTERN GHATS	12.0N 79.0E	13.3N 77.1E	68 LO	250 N H 890809	11:52:18	165 282 19 16
77	84	INDIA	EASTERN GHATS	12.0N 78.5E	12.9N 77.4E	78 NV	250 N H 890809	11:52:26	165 283 18 16
78	60	INDIA	EASTERN GHATS	15.0N 77.0E	14.8N 76.2E	70 NV	100 N Y 890809	11:51:44	165 282 20 16
79	61	INDIA	EASTERN GHATS	15.0N 78.0E	14.5N 76.4E	78 NV	100 N Y 890809	11:51:50	165 282 20 16
79	62	INDIA	EASTERN GHATS	15.0N 78.0E	14.3N 76.5E	78 NV	100 N Y 890809	11:51:53	165 282 20 16
79	63	INDIA	EASTERN GHATS	14.0N 77.0E	14.1N 76.7E	78 NV	100 N H 890809	11:51:58	165 282 19 16
79	64	INDIA	EASTERN GHATS	14.0N 78.5E	13.5N 77.1E	68 NV	100 N Y 890809	11:52:09	165 282 19 16
79	65	INDIA	EASTERN GHATS	13.5N 78.0E	13.0N 77.3E	68 NV	100 N Y 890809	11:52:17	165 283 18 16
79	66	INDIA	EASTERN GHATS	12.5N 78.5E	12.6N 77.6E	78 NV	100 N Y 890809	11:52:24	165 283 18 16
79	67	INDIA	EASTERN GHATS	12.0N 78.0E	12.1N 77.9E	78 NV	100 N Y 890809	11:52:34	165 283 18 16
79	68	INDIA	EASTERN GHATS	12.0N 79.0E	11.6N 78.2E	78 NV	100 N Y 890809	11:52:43	165 283 17 16
79	69	INDIA	COLeroon RIVER	11.0N 79.0E	11.1N 78.5E	70 NV	100 N Y 890809	11:52:52	165 283 17 16
79	70	INDIA	PALK STRAIT	10.5N 80.0E	10.2N 79.0E	30 NV	100 N Y 890809	11:53:08	165 284 16 16
79	71	INDIA	PALK STRAIT	10.0N 79.5E	9.3N 79.6E	68 NV	100 N Y 890809	11:53:24	164 284 15 16
80	38	INDIA	SUTLEJ RIVER	32.0N 76.0E	33.7N 77.3E	50 LO	100 N H 890810	10:24:53	164 262 40 31
84	22	INDIA	MOUTHS OF THE INDUS	23.0N 49.0E	26.1N 68.3E	70 LO	100 N H 890812	18:42:58	164 266 44 63
91	24	INDIA	BAY OF BENGAL COASTLINE	20.5N 86.5E	20.4N 87.6E	50 NV	250 N H 890813	09:22:12	165 270 45 78
93	48	INDIA	JHELUM R. KASHMIR VALLEY	34.5N 74.5E	35.1N 76.0E	50 LO	100 N H 890810	10:23:31	164 260 41 31
93	50	INDIA	JHELUM R. KASHMIR VALLEY	34.0N 74.5E	34.9N 76.1E	50 LO	100 N H 890810	10:23:31	164 260 41 31
93	51	INDIA	RAVI R. CHENAB R. PLAINS	33.0N 75.0E	34.8N 76.2E	50 LO	100 N H 890810	10:23:36	164 260 41 31
93	52	INDIA	HIMALAYA RANGE	33.0N 76.0E	34.5N 76.5E	75 LO	100 N H 890810	10:23:42	164 261 41 31
93	53	INDIA	KASHMIR BASIN. PIR PANJAL	33.5N 74.5E	34.1N 76.9E	40 LO	100 N Y 890810	10:23:51	164 262 40 31
93	54	INDIA	CHENAB R. PIR PANJAL RGE	33.0N 75.0E	33.9N 77.1E	50 LO	100 N Y 890810	10:23:55	164 262 40 31
93	55	INDIA	RAVI R. BEAS R. PLAINS	32.0N 75.5E	33.8N 77.2E	50 LO	100 N Y 890810	10:23:57	164 262 40 31
93	56	INDIA	SUTLEJ R. BEAS R.	32.0N 76.5E	33.5N 77.5E	60 LO	100 N Y 890810	10:24:03	164 262 40 31
93	57	INDIA	SUTLEJ R. YAMUNA R.	31.0N 77.0E	32.2N 78.6E	60 LO	100 N Y 890810	10:24:27	164 264 39 31
93	58	INDIA	SUTLEJ R. YAMUNA R.	30.5N 77.0E	31.9N 78.9E	60 LO	100 N Y 890810	10:24:34	164 265 39 31
93	59	INDIA	GANGES R. YAMUNA R.	30.0N 78.0E	31.5N 79.3E	70 LO	100 N Y 890810	10:24:41	164 265 38 31
93	63	INDIA	GHAGHARA R. RAPTI R.	26.5N 83.5E	26.1N 83.3E	60 NV	100 N H 890810	10:26:26	164 272 34 31
93	64	INDIA	GHAGHARA R.	25.5N 85.5E	25.1N 84.5E	60 LO	100 N H 890810	10:26:45	165 273 33 31
151	56	INDIA	BRAHMAPUTRA RIVER	25.5N 90.5E	28.3N 91.8E	80 HO	90 N H 890809	10:17:04	165 272 31 15
151	58	INDIA	MEGHNA R. FLOOD	24.0N 92.0E		75 HO	90 N H		
151	110	INDIA	RIVER EFFLUENT		20.6N 72.5E	90 LO	90 N H 890809	11:49:59	165 278 25 16



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	111	INDIA	DECCAN PLAT. HOGARI R.	15.0N 76.5E	15.1N 76.1E	80 NV	90 N Y 890809	11:51:41	165 282 20 16
151	112	INDIA	DECCAN PLAT. HOGARI R.	14.5N 77.0E	14.2N 76.4E	75 NV	90 N Y 890809	11:51:57	165 282 20 16
151	113	INDIA	DECCAN PLAT. PENNER R.	13.3N 77.5E	12.8N 77.5E	NV	90 N Y 890809	11:52:22	165 283 18 16
151	114	INDIA	COLEROON R. COAST	11.5N 79.0E	11.3N 78.4E	50 NV	90 U Y 890809	11:52:48	165 283 17 16
151	115	INDIA	COLEROON R. COAST	11.0N 79.0E	10.4N 78.9E	50 NV	90 U Y 890809	11:53:05	165 284 16 16
151	116	INDIA	SOUTH END COAST	9.5N 78.5E		60 LO	90 U N		
151	117	INDIA	COLEROON R. SE COAST	11.0N 79.5E	9.4N 79.5E	50 LO	90 U Y 890809	11:53:23	165 284 15 16
152	55	INDIA	GHAGHARA R. AGR.	28.0N 81.5E	28.8N 81.6E	60 NV	250 N N 890810	10:25:25	164 269 34 31
152	56	INDIA	GHAGHARA R. RAPT R.	26.5N 83.5E	26.6N 83.3E	60 NV	250 N N 890810	10:26:07	164 271 35 31
152	57	INDIA	GREAT GANDAK R. AGR.	27.0N 84.0E		60 LO	250 N N		
87	52	INDONESIA	BORNEO	0.0 117.5E	0.4S 115.4E	40 LO	100 N N 890811	09:12:16	166 286 17 46
87	53	INDONESIA	BORNEO	0.5S 117.5E	0.8S 115.9E	20 NV	100 N N 890811	09:12:22	166 286 16 46
87	54	INDONESIA	BORNEO	1.0S 117.5E	1.8S 117.6E	70 LO	100 N N 890811	09:13:16	166 287 14 46
87	55	INDONESIA	SULAWESI	5.0S 120.0E	6.5S 119.1E	50 NV	100 N N 890811	09:14:04	166 287 11 46
87	56	INDONESIA	SUMBAWA	8.5S 119.0E	8.3S 120.2E	50 NV	100 N N 890811	09:14:34	166 287 10 46
87	57	INDONESIA	SUMBA	10.8S 120.5E	9.5S 120.9E	20 LO	100 N N 890811	09:14:57	166 287 9 46
100	34	INDONESIA	JAVA, SUMMING VOLCANO	7.5S 110.0E	4.9S 110.5E	60 LO	250 N N 890812	09:21:42	166 287 18 62
100	35	INDONESIA	JAVA, MURDO VOLCANO	6.5S 111.0E	5.9S 111.1E	10 NV	250 N N 890812	09:22:01	166 288 17 62
100	36	INDONESIA	JAVA, PEKANDJAKAN VOLCANO	8.8S 113.0E	7.5S 112.0E	70 LO	250 N N 890812	09:22:28	166 288 16 62
100	37	INDONESIA	JAVA, RAUNG VOLCANO	8.8S 114.0E	9.8S 113.4E	60 LO	250 N N 890812	09:23:11	166 288 14 62
100	38	INDONESIA	BALL VOLCANIC RIDGE	8.5S 115.5E	10.4S 113.7E	60 LO	250 N N 890812	09:23:21	166 288 13 62
152	254	INDONESIA	IRIAN JAYA, NAMBERAMO R.	3.0S 131.0E	5.8S 141.7E	50 LO	250 N N 890811	07:43:16	166 287 12 45
153	74 C	INDONESIA	BANGKA I/STR. SUMATRA	1.8S 104.5E		80 LO	90 N N		
74	15	IRAN	IRAQ BORDER	32.8N 48.5E	31.8N 48.2E	0 NV	250 N Y 890811	12:03:19	164 261 44 48
74	16	IRAN	IRAQ BORDER	32.8N 48.5E	31.2N 48.8E	0 NV	250 N Y 890811	12:03:32	164 262 43 48
74	17	IRAN	IRAQ BORDER	31.5N 48.5E	31.1N 48.9E	0 NV	250 N Y 890811	12:03:35	164 262 43 48
74	18	IRAN	IRAQ BORDER	31.5N 48.5E	30.9N 49.1E	0 NV	250 N Y 890811	12:03:39	164 262 43 48
74	19	IRAN	IRAQ BORDER	31.5N 48.0E	30.4N 49.5E	5 NV	250 N Y 890811	12:03:48	164 263 43 48
79	33	IRAN	KOPETDAG MOUNTAINS, USSR	37.5N 57.5E	38.3N 57.3E	0 NV	100 N Y 890809	11:44:15	164 259 39 16
79	34	IRAN	KOPETDAG MOUNTAINS, USSR	37.5N 58.0E	37.8N 57.9E	0 NV	100 N Y 890809	11:44:26	164 260 39 16
79	37	IRAN	USSR BORDER	34.5N 60.0E	34.9N 58.8E	0 NV	100 N N 890809	11:44:43	164 261 38 16
79	38	IRAN	AFGHANISTAN, USSR	33.5N 60.5E	35.5N 60.3E	0 NV	100 N Y 890809	11:45:13	164 263 37 16
80	83	IRAN	TEHRAN	36.0N 51.0E	35.8N 52.2E	60 NV	100 N Y 890810	11:53:09	164 259 42 32
80	84	IRAN	TEHRAN	35.5N 52.5E	35.4N 52.4E	50 NV	100 N Y 890810	11:53:56	164 259 42 32
80	85	IRAN	EAST OF TEHRAN	35.0N 52.0E	35.1N 52.6E	5 NV	100 N Y 890810	11:54:01	164 259 41 32
80	86	IRAN	TEHRAN	35.0N 51.5E	35.3N 52.7E	5 NV	100 N Y 890810	11:54:03	164 259 41 32
80	87	IRAN	MOUNTAINS, DESERT	33.5N 54.0E	34.0N 54.0E	0 NV	100 N Y 890810	11:54:28	164 261 41 32
80	88	IRAN	MOUNTAINS, DESERT	33.5N 53.0E	33.1N 54.2E	0 NV	100 N Y 890810	11:54:32	164 262 40 32
80	89	IRAN	GAVKHUM SALT LAKE	32.0N 54.0E	33.0N 55.0E	0 NV	100 N Y 890810	11:54:49	164 263 40 32
80	90	IRAN	GAVKHUM SALT LAKE	32.5N 53.5E	32.8N 55.1E	0 NV	100 N Y 890810	11:54:52	164 263 40 32
80	91	IRAN	GAVKHUM SALT LAKE	33.0N 53.0E	32.5N 55.4E	0 NV	100 N Y 890810	11:54:58	164 264 39 32
80	92	IRAN	GAVKHUM SALT LAKE	32.5N 53.5E	32.2N 55.7E	0 NV	100 N Y 890810	11:55:04	164 264 39 32
80	93	IRAN	MOUNTAINS, DESERT	31.5N 54.0E	32.6N 55.9E	0 NV	100 N Y 890810	11:55:09	164 264 39 32
80	94	IRAN	LUT DESERT	31.6N 57.5E	31.6N 56.7E	0 NV	100 N Y 890810	11:55:27	164 266 38 32
80	95	IRAN	LUT DESERT	31.0N 57.5E	30.0N 56.8E	0 NV	100 N Y 890810	11:55:29	164 266 38 32
80	96	IRAN	LUT DESERT	30.5N 58.0E	30.8N 56.9E	0 NV	100 N Y 890810	11:55:31	164 266 38 32
80	97	IRAN	LUT DESERT	30.0N 58.5E	30.7N 57.0E	5 NV	100 N Y 890810	11:55:34	164 266 38 32
80	98	IRAN	MTNS. WEST OF LUT DESERT	31.0N 57.0E	30.2N 57.4E	0 NV	100 N Y 890810	11:55:43	164 267 38 32
80	99	IRAN	MTNS. WEST OF LUT DESERT	30.5N 57.5E	30.1N 57.6E	5 NV	100 N Y 890810	11:55:46	164 267 38 32
80	100	IRAN	MTNS. WEST OF LUT DESERT	29.5N 57.5E	29.8N 57.7E	10 NV	100 N Y 890810	11:55:49	164 267 38 32
80	101	IRAN	STRAIT OF HORMUZ	27.0N 54.0E	28.6N 58.8E	10 LO	100 N N 890810	11:55:14	164 269 37 32
80	102	IRAN	MOUNTAINS, DESERT	28.0N 60.0E	27.1N 58.1E	10 NV	100 N Y 890810	11:56:42	164 270 35 32
80	103	IRAN	MOUNTAINS, DESERT	27.5N 60.5E	26.8N 60.2E	10 NV	100 N Y 890810	11:56:49	164 271 35 32
80	104	IRAN	GULF OF OMAN COASTLINE	26.0N 58.5E	26.2N 60.4E	10 NV	100 N N 890810	11:56:59	164 271 35 32
84	15	IRAN	USSR BORDER	34.0N 60.0E	37.3N 58.2E	10 LO	100 N N 890812	10:39:18	164 246 51 63
96	20	IRAN	LAKE ORUMIYEH	34.0N 45.0E	39.8N 47.8E	10 LO	250 N Y 890810	11:52:15	163 251 44 32
96	21	IRAN	L. ORUMIYEH, BURA CHALLU	34.0N 45.5E	39.3N 48.3E	10 LO	250 N Y 890810	11:52:25	164 252 44 32
96	22	IRAN	L. ORUMIYEH, BURA CHALLU	37.5N 45.5E	39.1N 48.7E	10 LO	250 N Y 890810	11:52:31	164 253 44 32
96	23	IRAN	L. ORUMIYEH, EDDIES	37.5N 45.5E	38.7N 49.0E	10 LO	250 N Y 890810	11:52:38	164 253 44 32
96	24	IRAN	L. HOWZ SOLTAN, QAREH ST	35.0N 51.9E	35.4N 52.6E	0 LO	250 N N 890810	11:53:07	164 259 41 32
96	25	IRAN	NAMAK LAKE	34.5N 51.5E	35.2N 52.8E	0 LO	250 N N 890810	11:53:51	164 260 41 32
96	26	IRAN	L. HOWZ SOLTAN, SHUR ST.	35.0N 51.0E	34.7N 53.3E	0 LO	250 N N 890810	11:54:01	164 260 41 32
96	27	IRAN	L. NAMAK, MT. SEYAH	34.5N 52.0E	34.4N 53.4E	0 LO	250 N N 890810	11:54:07	164 261 41 32
96	28	IRAN	GAVKHUM MARSH, AGR.	32.0N 53.0E	33.9N 54.1E	0 LO	250 N N 890810	11:54:17	164 262 40 32
96	29	IRAN	NAYBAND FAULT, KERMAN	30.5N 57.5E	30.7N 57.0E	0 NV	250 N Y 890810	11:55:20	164 266 38 32
96	30	IRAN	NAYBAND FAULT, SHAHDAD	30.5N 57.5E	30.5N 57.2E	0 NV	250 N Y 890810	11:55:24	164 266 38 32
96	31	IRAN	NAYBAND FAULT	30.0N 57.5E	30.3N 57.4E	0 NV	250 N Y 890810	11:55:28	164 267 38 32
96	32	IRAN	NAYBAND FAULT, TAHRUD ST	29.5N 58.0E	30.0N 57.4E	0 NV	250 N Y 890810	11:55:33	164 267 38 32
96	33	IRAN	MT. BAZNAN	28.0N 60.0E	27.6N 59.6E	5 NV	250 N N 890810	11:56:19	164 270 36 32
96	34	IRAN	MT. KOHET, RUTAK STREAM	27.0N 61.5E	26.6N 61.1E	10 LO	250 N Y 890810	11:56:57	165 272 34 32



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

PL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	AL AZ EL OR
96	35	IRAN	MT. KOHST. BIRAG MTNS.	27.5N 61.5E	25.5N 61.2E	5 LO	250 N Y 890810	11:54:59	165 272 34 32
96	36	IRAN	BIRAG MTNS.	27.5N 61.0E	25.5N 61.3E	5 LO	250 N Y 890810	11:57:02	165 272 34 32
96	37	IRAN	ARABIAN SEA.CST.PAS NUH	25.0N 42.0E	24.8N 41.7E	40 NV	250 N N 890810	11:57:12	165 273 34 32
99	76	IRAN	ZAGROS MTNS.DES. BASINS	33.0N 52.0E	32.0N 48.1E	20 HO	50 N N 890811	12:03:15	164 260 44 48
99	77	IRAN	PERSIAN G. QATAR	29.5N 52.0E	30.5N 49.4E	15 HO	50 N N 890811	12:03:44	164 263 43 48
151	85	IRAN	KOPPEH DAGH MTNS. DES.	38.0N 57.0E	38.4N 57.2E	10 NV	90 N Y 890809	13:44:18	164 250 39 16
151	86	IRAN	KOPPEH DAGH MTNS.DESERT	37.5N 57.5E	37.0N 57.8E	10 NV	90 N Y 890809	13:44:25	164 250 39 16
151	87	IRAN	KOPPEH DAGH MTNS.DESERT	37.0N 58.0E	37.3N 58.4E	0 NV	90 N Y 890809	13:44:37	164 260 39 16
151	88	IRAN	MASHHAD. MT. BINALUD	36.0N 59.5E	36.1N 59.7E	0 NV	90 N Y 890809	13:45:01	164 262 38 16
151	91	IRAN	MASHHAD. NE MTN. RANGES	35.5N 60.0E	35.6N 60.2E	0 NV	90 N Y 890809	13:45:12	164 263 37 16
151	92	IRAN	NE MTN RANGES.SALT FLATS	35.0N 60.5E	35.0N 60.8E	0 NV	90 N Y 890809	13:45:24	164 264 37 16
152	81	IRAN	ESFAHAN. KUMHAYE MTNS	32.0N 52.0E	34.0N 54.0E	10 LO	250 N N 890810	11:54:15	164 261 41 32
152	82	IRAN	KUMHAYE MTNS. PERSIAN G.	29.0N 52.0E	33.4N 54.6E	5 HO	250 N N 890810	11:54:27	164 262 40 32
153	8 A	IRAN	TIGRIS/EUPHRATES DELTA	30.5N 48.5E		0 LO	250 N N		
74	14	IRAQ	DIYALA RIVER	34.5N 45.0E	34.7N 45.6E	0 NV	250 N Y 890811	12:02:23	164 254 45 48
74	14 A	IRAQ	DIYALA RIVER	34.5N 45.0E		0 NV	250 N Y		
87	100	IRAQ	TURKEY, IRAN	37.0N 44.0E	41.2N 38.3E	30 HO	100 N N 890811	12:00:11	163 242 49 40
87	103	IRAQ	TIGRIS RIVER	37.0N 43.5E	35.5N 44.8E	10 NV	100 N N 890811	12:02:12	164 254 46 48
151	156	IRAQ	EUPHRATES R. L. THARTHAR	29.5N 48.5E	34.4N 38.4E	15 HO	90 N Y 890809	13:16:00	164 264 37 17
151	137	IRAQ	EUPHRATES R. L. MILH	30.0N 48.0E	33.0N 39.0E	10 HO	90 N Y 890809	13:16:21	164 265 36 17
152	79	IRAQ	TIGRIS/EUPHRATES R.	31.5N 47.5E	34.2N 51.8E	20 HO	250 N N 890810	11:53:31	164 258 42 32
152	80	IRAQ	TIGRIS/EUPHRATES R.	32.0N 48.0E	35.6N 52.4E	20 HO	250 N N 890810	11:53:43	164 259 42 32
83	6	IRELAND	SOUTHWESTERN COASTLINE	53.0N 9.0W	53.8N 10.8W	90 LO	100 N N 890811	13:25:07	162 194 51 49
96	64	ISRAEL	DEAD SEA. RIVER JORDAN	31.5N 35.5E	30.2N 34.4E	0 LO	250 N Y 890810	13:26:00	164 264 38 33
96	69	ISRAEL	WADI ARABA. WADI EL JEIB	30.0N 35.0E	29.4N 35.1E	0 LO	250 N Y 890810	13:26:16	164 267 37 33
96	72	ISRAEL	BEERSHEVA. COAST. AGR	31.5N 35.0E	28.9N 35.5E	0 LO	250 N N 890810	13:26:25	164 268 37 33
96	73	ISRAEL	IS/EG BOUNDARY. SINAI	29.0N 34.5E	28.4N 35.6E	0 LO	250 N Y 890810	13:26:27	164 268 37 33
74	48	ITALY	GULF OF GENOA	44.5N 9.0E	45.1N 9.0E	20 NV	250 N N 890811	13:29:12	163 231 51 49
74	49	ITALY	LIGURIAN SEA	44.0N 10.0E	44.6N 10.4E	60 NV	250 N N 890811	13:29:23	163 233 50 49
74	50	ITALY	NAPOLI. VESUVIUS	41.0N 14.5E	42.2N 13.9E	60 NV	250 N Y 890811	13:30:16	163 239 50 49
74	51	ITALY	NAPOLI. VESUVIUS	41.0N 14.5E	42.0N 14.3E	50 NV	250 N Y 890811	13:30:22	163 240 49 49
78	73	ITALY	SARDINIA. CORSICA	41.0N 9.0E	39.8N 9.5E	5 LO	250 N N 890809	14:44:53	167 255 41 18
78	74	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.0E	39.2N 10.2E	20 LO	250 N N 890809	14:45:06	167 256 41 18
78	75	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.0E	38.8N 10.7E	20 LO	250 N N 890809	14:45:15	167 257 40 18
78	78	ITALY	MOUNT ETNA	38.0N 15.0E	34.4N 13.1E	0 NV	250 N Y 890809	14:46:04	167 261 38 18
78	79	ITALY	MOUNT ETNA	37.5N 15.0E	34.1N 13.7E	10 NV	250 N Y 890809	14:46:11	167 262 38 18
78	80	ITALY	MOUNT ETNA	37.5N 15.0E	35.8N 14.0E	10 NV	250 N Y 890809	14:46:17	167 262 38 18
81	24	ITALY	SARDINIA	40.5N 9.0E	41.6N 7.1E	5 LO	100 N N 890809	14:46:29	167 252 42 18
81	25	ITALY	SARDINIA	39.5N 9.0E	41.8N 8.0E	5 LO	100 N N 890809	14:46:40	167 252 42 18
81	26	ITALY	SARDINIA	40.0N 9.5E	39.8N 8.6E	5 NV	160 N Y 890809	14:45:07	167 255 41 18
81	27	ITALY	SARDINIA	39.5N 9.5E	39.6N 9.8E	5 NV	180 N Y 890809	14:45:11	167 256 41 18
81	28	ITALY	SARDINIA	39.5N 9.5E	39.5N 9.9E	5 NV	100 N Y 890809	14:45:14	167 256 41 18
81	29	ITALY	SICILY	38.0N 13.0E	37.7N 12.0E	10 NV	160 N Y 890809	14:45:52	167 259 39 18
81	30	ITALY	SICILY	37.5N 14.5E	37.5N 12.2E	10 NV	100 N Y 890809	14:45:55	167 259 39 18
81	31	ITALY	SICILY	38.0N 14.5E	37.4N 12.3E	20 NV	100 N Y 890809	14:45:58	167 260 39 18
87	23	ITALY	ALPS. LAKE MAGGIORE	46.0N 8.5E	46.2N 8.5E	30 NV	100 N N 890811	07:11:13	161 97 28 45
88	42	ITALY	ALPS	44.5N 7.0E	44.3N 5.4E	20 NV	250 N Y 890811	07:10:36	161 94 26 45
90	54	ITALY	ELBA	43.0N 10.5E	42.7N 10.6E	10 NV	250 N Y 890813	05:55:43	160 84 16 76
90	55	ITALY	PIOMBINO	43.0N 11.0E	42.8N 10.8E	10 NV	250 N Y 890813	05:55:46	160 85 16 76
90	56	ITALY	TYRRHENIAN SEA COASTLINE	43.0N 11.0E	43.0N 11.0E	5 NV	250 N Y 890813	05:55:50	160 85 16 76
90	57	ITALY	TYRRHENIAN SEA COASTLINE	42.5N 11.5E	43.2N 11.3E	5 NV	250 N Y 890813	05:55:54	160 85 16 76
90	58	ITALY	ADRIATIC SEA COASTLINE	43.5N 13.5E	43.7N 12.0E	5 NV	250 N N 890813	05:56:06	160 86 17 76
90	59	ITALY	GULF OF VENICE	45.0N 12.5E	44.2N 12.8E	5 NV	250 N N 890813	05:56:18	160 87 18 76
90	61	ITALY	VENICE	45.5N 12.5E	44.9N 13.9E	10 NV	250 N Y 890813	05:56:34	160 88 19 76
90	62	ITALY	VENICE	45.0N 12.5E	45.1N 14.2E	10 NV	250 N Y 890813	05:56:39	160 88 19 76
96	44	ITALY	VENICE. GULF OF VENICE	45.5N 13.0E	46.2N 15.6E	75 LO	250 N N 890810	13:20:21	163 234 48 33
96	45	ITALY	TAGLIAMENTO R. MEDUNA R.	46.0N 13.0E	46.0N 16.0E	80 LO	250 N N 890810	13:20:27	163 235 48 33
96	48	ITALY	GARGANO PEN. COAST	42.0N 16.0E	45.2N 17.4E	15 LO	250 N N 890810	13:20:47	163 238 48 33
97	0 E	ITALY	N. CENTRAL. PANORAMA	43.5N 11.5E		30 LO	100 N N		
97	0 F	ITALY	CENTRAL. PANORAMA	42.8N 13.0E		30 LO	100 N N		
97	0 G	ITALY	CENTR. YUGO.CST. PANOR.	42.5N 15.0E		20 LO	100 N N		
97	0 H	ITALY	S.CENT. YUGO.ISL. PANOR.	42.0N 16.5E		20 LO	100 N N		
97	0 J	ITALY	BOOT AREA. SICILY. PAN.	40.5N 16.0E		25 LO	100 N N		
97	0 K	ITALY	S.Boot. SICILY. PANORAMA	39.5N 17.5E		20 HO	100 N N		
151	170	ITALY	SARDINIA. CORSICA	41.0N 8.5E	40.4N 8.8E	10 NV	90 N Y 890809	14:44:42	167 254 41 18
151	171	ITALY	SARDINIA. CORSICA	40.5N 8.5E	39.8N 9.6E	10 LO	90 N N 890809	14:44:55	167 255 41 18
151	172	ITALY	SICILY	38.5N 12.5E	37.4N 12.3E	20 NV	90 N Y 890809	14:45:45	167 260 39 18
151	173	ITALY	SICILY	38.0N 14.0E	36.7N 13.0E	20 LO	90 N Y 890809	14:45:59	167 261 39 18
151	174	ITALY	SICILY. MALTA. GOZO	36.5N 13.5E	35.3N 14.5E	20 LO	90 N N 890809	14:46:28	168 263 38 18
152	181	ITALY	ALPS. L. MAGGIORE	45.0N 8.5E	45.4N 7.1E	70 LO	250 N Y 890811	07:10:40	161 96 27 45

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON.	NADIR LAT. LON.	CC TL	FL E & DATE	CMT	SUN AL AZ EL OR
152	182	ITALY	ALPS, L. MAGGIORE	45.5N 8.5E		70 LO	250 N Y		
99	89	IVORY COAST	ABIDJAN/TREICHVILLE, CST.	5.8N 4.0W	7.2N 3.7W	50 HO	50 N H 890811	15:42:28	165 283 25 51
76	72	JAMAICA	EASTERN END, KINGSTON	18.8N 76.5W	18.1N 79.8W	20 LO	250 N H 890808	22:16:37	165 281 20 7
73	183	JAPAN	KYUSHU, HONSHU	33.5N 131.5E	35.1N 129.4E	30 LO	250 N H 890812	06:07:34	164 251 48 60
73	184	JAPAN	SHIKOKU	33.5N 133.5E	34.2N 130.3E	40 LO	250 N H 890812	06:07:42	164 253 48 60
76	20	JAPAN	HOKKAIDO	43.8N 144.8E	39.3N 152.8E	50 HO	250 N H 890808	21:48:32	161 85 31 7
81	181	JAPAN	HOKKAIDO	42.8N 141.8E	39.4N 144.7E	50 LO	180 N H 890809	21:57:28	161 92 27 23
81	182	JAPAN	HOKKAIDO	41.5N 140.5E	40.8N 145.1E	60 LO	180 N H 890809	21:57:27	161 82 28 23
81	183	JAPAN	HOKKAIDO	42.5N 144.5E	40.5N 145.7E	50 LO	180 N H 890809	21:57:38	161 93 28 23
81	184	JAPAN	HOKKAIDO	43.8N 140.5E	40.9N 146.2E	60 LO	180 N H 890809	21:57:46	161 83 28 23
81	185	JAPAN	HOKKAIDO	43.5N 141.8E	41.1N 146.4E	70 LO	180 N H 890809	21:57:52	161 94 28 23
81	186	JAPAN	HOKKAIDO	44.8N 145.9E		80 LO	180 N H		
82	94	JAPAN	CLOUDS		33.4N 138.1E	90	N H 890809	21:55:00	161 85 21 23
83	81	JAPAN	KYUSHU	32.5N 138.5E	34.7N 129.8E	60 LO	180 N H 890812	06:08:48	164 252 48 60
83	82	JAPAN	HONSHU, SHIKOKU	34.5N 134.5E	33.9N 130.6E	50 LO	180 N H 890812	06:08:55	164 254 48 60
83	83	JAPAN	HONSHU, SHIKOKU	34.8N 135.8E	32.7N 131.7E	40 LO	180 N H 890812	06:09:28	164 256 48 60
83	84	JAPAN	OSUMI ISLANDS, SUNGLINT	29.5N 131.5E	30.5N 133.7E	40 LO	180 N H 890812	06:10:43	164 260 48 60
87	9	JAPAN	HONSHU	33.5N 140.5E	40.9N 137.4E	80 LO	180 N H 890818	22:05:44	161 83 23 39
87	10	JAPAN	HOKKAIDO, HONSHU	42.8N 141.8E	41.3N 139.8E	70 LO	180 N H 890810	22:06:11	161 81 24 39
88	15	JAPAN	HOKKAIDO, SUNGLINT	43.8N 144.5E	43.2N 141.6E	18 LO	250 N H 890818	22:07:01	161 83 26 39
88	16	JAPAN	HOKKAIDO, SUNGLINT	43.8N 145.8E	43.3N 141.8E	28 LO	250 N H 890818	22:07:05	161 94 27 39
88	17	JAPAN	HOKKAIDO, SUNGLINT	43.8N 145.5E	43.5N 142.0E	40 LO	250 N H 890818	22:07:08	161 84 27 39
90	7	JAPAN	O-SHIMA, SMOKE	34.5N 139.5E	34.5N 139.0E	20 HV	250 U Y 890812	22:09:52	168 78 8 70
90	8	JAPAN	O-SHIMA, SMOKE	34.5N 139.5E	35.8N 129.5E	20 HV	250 U Y 890812	22:10:02	165 78 8 70
90	9	JAPAN	TOKYO	35.5N 140.8E	35.7N 140.2E	18 HV	250 N H 890812	22:58:16	160 79 10 70
95	36	JAPAN	AMAMI GUNTO	28.5N 129.5E	28.1N 128.2E	40 LO	180 N Y 890818	07:24:44	164 275 35 29
95	37	JAPAN	AMAMI GUNTO	28.5N 129.5E	27.7N 128.4E	40 LO	180 N Y 890818	07:24:51	164 278 35 29
95	38	JAPAN	OKINAWA, EDDIES	26.5N 128.8E	26.5N 129.4E	50 LO	180 N Y 890818	07:25:14	164 272 34 29
95	39	JAPAN	OKINAWA, EDDIES	26.8N 127.5E	25.8N 129.8E	50 LO	180 N Y 890818	07:25:27	164 272 33 29
98	58	JAPAN	RIEYA I. IE I. IZENIA I.	27.8N 128.8E	27.6N 128.5E	38 NV	250 N H 890818	07:24:48	164 270 35 29
98	60	JAPAN	ASHITO ISLAND	27.8N 128.5E	27.4N 128.7E	48 NV	250 N H 890818	07:24:53	164 271 35 29
98	61	JAPAN	OKINAWA ARCH. STREAMLINES	26.5N 127.5E	26.2N 129.6E	35 LO	250 N H 890818	07:25:16	164 272 34 29
98	62	JAPAN	OKINAWA ARCH. STREAMLINES	26.8N 127.8E	25.4N 134.2E	35 LO	250 N H 890818	07:25:31	165 273 33 29
152	250	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 123.5E	24.8N 122.9E	50 NV	250 N H 890811	07:34:01	165 271 34 45
152	251	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 124.0E	24.4N 123.1E	50 NV	250 N H 890811	07:34:05	165 271 34 45
152	252	JAPAN	IRIMOTE I. ISHIGAKI I.	24.5N 123.5E	24.2N 123.4E	50 LO	250 N H 890811	07:34:13	165 271 37 45
152	253	JAPAN	SAKISHIMA ISLANDS	25.8N 125.5E	23.4N 124.0E	50 LO	250 N H 890811	07:34:28	165 272 37 45
153	34	JAPAN	FRONT, CONV. STORMS		37.3N 127.3E	90 HO	250 N H 890811	22:12:31	161 83 14 55
153	61	JAPAN	KYUSHU, HONSHU, SETO SEA	34.8N 130.5E	34.2N 130.3E	40 NV	90 U N 890812	06:08:58	164 253 48 60
153	62	JAPAN	SHIKOKU, HONSHU, SETO SEA	34.8N 132.0E	33.4N 131.8E	40 NV	90 U N 890812	06:09:15	164 255 48 60
79	103	JORDAN	ISRAEL, DEAD SEA	32.8N 34.8E	34.5N 32.3E	5 LO	180 N H 890809	13:16:45	164 264 37 17
79	184	JORDAN	ISRAEL, SEA OF GALILEE	32.5N 34.8E	34.4N 34.4E	5 LO	180 N H 890809	13:16:48	164 265 37 17
96	65	JORDAN	DEAD SEA, WADI JEB	31.8N 35.5E	30.1N 34.5E	0 LO	250 H Y 890810	13:26:02	164 267 38 33
96	66	JORDAN	WADI ARABA, WADI EL JEB	30.5N 35.5E	30.6N 34.6E	0 LO	250 N Y 890810	13:26:05	164 267 38 33
96	67	JORDAN	GULF OF AQABA, AQABA	29.5N 35.8E	29.6N 34.9E	0 LO	250 N Y 890810	13:26:12	164 267 38 33
96	68	JORDAN	AQABA, WADI ARABA	29.5N 35.8E	29.5N 35.0E	0 LO	250 N Y 890810	13:26:18	164 267 38 33
96	70	JORDAN	WADI EL JEB, ESH SHARA	30.5N 35.5E	29.3N 35.2E	0 LO	250 N Y 890810	13:26:18	164 264 37 33
96	71	JORDAN	WADI EL JEB, DEAD SEA	31.6N 35.5E	29.2N 35.3E	0 LO	250 N Y 890810	13:26:21	164 268 37 33
78	97	KENYA	LAKE RUDOLF	4.8N 36.6E	5.4N 35.8E	5 NV	250 N H 890809	14:55:46	171 285 13 18
78	98	KENYA	LAKE RUDOLF	3.5N 36.6E	5.2N 36.0E	5 LO	250 N H 890809	14:55:50	171 285 12 18
78	99	KENYA	LAVA		1.8N 37.8E	50	250 N H 890809	14:56:50	171 286 8 18
78	100	KENYA	LAVA		0.2N 38.8E	10	250 N H 890809	14:57:18	171 286 8 18
81	43	KENYA	LAKE RUDOLF	4.0N 36.8E	5.6N 35.7E	10 LO	180 N H 890809	14:55:54	171 285 13 18
81	44	KENYA	LAKE RUDOLF, MT. KULAL	2.5N 37.8E	4.2N 36.5E	5 LO	180 N H 890809	14:56:21	171 285 11 18
81	45	KENYA	LAKE RUDOLF, MT. KULAL	2.5N 37.8E	3.5N 36.8E	5 NV	180 N H 890809	14:56:33	171 285 11 18
81	46	KENYA	LAKE RUDOLF, MT. KULAL	3.2N 36.5E	2.0N 37.8E	5 LO	180 N H 890809	14:57:00	171 286 10 18
81	47	KENYA	LAVA		0.6N 38.6E	30	180 N H 890809	14:57:25	171 286 8 18
153	104	LAND	CLOUD FRONT, HAZE, SGLT			70 HO	90 N H		
153	105	LAND	CLOUD FRONT, HAZE, SGLT			70 HO	90 N H		
153	106	LAND	CLOUD FRONT, HAZE, SGLT			HO	90 N H		
153	74	Q. LEBANON	MED. CST. HINS RES.	34.5N 34.8E		20 LO	90 N H		
86	96	LIBERIA	COASTLINE	6.5N 11.8W	6.1N 10.7W	90 NV	180 N H 890812	16:51:08	165 284 30 35
86	97	LIBERIA	COASTLINE	6.5N 10.5W	6.0N 10.7W	90 NV	180 N H 890812	16:51:18	165 284 30 35
86	98	LIBERIA	COASTLINE	6.5N 11.0W	5.9N 10.6W	90 NV	180 N H 890812	16:51:13	165 284 29 35
74	59	LIBYA	TUBRUQ, AL ADAM	32.6N 24.8E	33.6N 24.3E	5 HV	250 N H 890811	13:33:29	164 258 45 48
78	83	LIBYA	TRIPOLI	33.6N 13.5E	33.6N 16.1E	0 LO	250 N H 890809	14:47:01	168 265 34 18
78	84	LIBYA	MISURATA	32.5N 15.0E	33.2N 16.6E	0 NV	250 N H 890809	14:47:10	168 266 34 18
78	85	LIBYA	GULF OF SIDRA	31.5N 16.0E	31.5N 18.0E	5 LO	250 N H 890809	14:47:42	168 268 35 18
78	86	LIBYA	GULF OF SIDRA	30.5N 18.5E	29.8N 18.5E	5 HV	250 N H 890809	14:48:15	168 270 33 18
78	87	LIBYA	IRRIGATED AGRICULTURE	27.6N 22.5E	27.4N 21.5E	0 NV	250 N H 890809	14:48:03	169 273 31 18

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
78	88	LIBYA	AL KUFRAH	24.0N 23.5E	24.3N 23.8E	0 NV	250 N Y	890809	14:50:00	165 273 29 18
78	89	LIBYA	AL KUFRAH	24.0N 23.5E	24.3N 24.2E	0 NV	250 N Y	890809	14:50:11	169 276 28 18
78	90	LIBYA	JABAL AUENAT	22.8N 25.0E	22.4N 25.2E	0 NV	250 N Y	890809	14:50:36	169 277 27 18
78	91	LIBYA	JABAL ARKENU	22.0N 25.0E	22.1N 25.4E	0 NV	250 N Y	890809	14:50:41	169 277 27 18
81	32	LIBYA	TRIPOLI	33.0N 13.5E	34.0N 15.8E	0 LO	100 N N	890809	14:47:04	164 265 37 18
81	33	LIBYA	TRIPOLI	33.0N 14.0E	33.5N 16.2E	0 LO	100 N N	890809	14:47:16	164 265 36 18
81	34	LIBYA	DESERT		29.8N 19.5E	0	100 N N	890809	14:48:29	168 270 33 18
81	35	LIBYA	IRRIGATED AGRICULTURE	27.0N 22.0E	29.1N 20.1E	0 LO	100 N N	890809	14:48:43	168 271 33 18
81	36	LIBYA	SAHARA	26.0N 23.5E	26.9N 21.9E	0 LO	100 N N	890809	14:48:24	169 273 31 18
81	38	LIBYA	JABAL ARKENU, I. AUENAT	22.5N 24.5E	23.8N 24.2E	0 LO	100 N N	890809	14:50:24	169 276 28 18
81	39	LIBYA	JABAL ARKENU, I. AUENAT	22.0N 25.0E	23.2N 24.7E	0 NV	100 N N	890809	14:50:35	169 276 28 18
89	15	LIBYA	MARZUQ SAND SEAL	27.5N 11.5E	31.4N 10.5E	30 LO	100 N N	890810	14:54:18	164 265 39 34
89	16	LIBYA	MARZUQ SAND SEAL	26.0N 13.0E	30.5N 11.2E	30 HO	100 N N	890810	14:54:35	164 264 36 34
89	17	LIBYA	MARZUQ SAND SEAL	26.0N 13.0E	29.2N 12.3E	10 LO	100 N N	890810	14:54:59	164 267 38 34
89	18	LIBYA	KUUDI OUAH KASA	25.0N 10.5E	27.1N 14.0E	30 LO	100 N N	890810	14:57:40	164 278 36 34
89	19	LIBYA	MARZUQ SAND SEA	24.0N 13.0E	26.1N 14.7E	30 LO	100 N N	890810	14:57:58	164 271 35 34
97	14	LIBYA	TRIPOLLEZ-ZAUIAMED.CST	33.0N 13.0E	32.6N 9.9E	0 LO	250 N N	890810	14:55:55	164 264 40 34
97	15	LIBYA	TRIPOLLEZ-ZAUIAMED.CST	33.0N 13.0E	31.5N 10.4E	0 LO	250 N N	890810	14:56:25	164 265 39 34
97	16	LIBYA	VOLC-UAU EN NAMUS	25.0N 17.5E	24.4N 16.6E	0 LO	250 N Y	890810	14:58:20	165 273 34 34
97	17	LIBYA	VOLC-UAU EN NAMUS	25.0N 17.5E		0 LO	250 N Y			
151	175	LIBYA	GULF OF SIDRA, TRIPOLI	32.5N 15.0E	33.0N 16.7E	0 LO	90 N N	890809	14:47:15	168 266 36 18
151	176	LIBYA	GULF OF SIDRA, COAST	31.5N 17.0E	32.2N 17.5E	10 NV	90 N Y	890809	14:47:31	168 267 35 18
151	177	LIBYA	GULF OF SIDRA, COAST	31.0N 19.0E	31.0N 18.5E	10 NV	90 N Y	890809	14:47:53	168 269 34 18
151	178	LIBYA	GULF OF SIDRA, COAST	30.5N 20.0E	30.2N 19.2E	10 NV	90 N Y	890809	14:48:09	168 278 34 18
151	179	LIBYA	N LIBYA DESERT, PIVOT IR	28.5N 21.5E	28.3N 19.1E	5 LO	90 N N	890809	14:48:26	168 270 33 18
151	180	LIBYA	N LIBYA DESERT, PIVOT IR	28.0N 21.0E		0 LO	90 N N			
152	140	LIBYA	BASIN, WADI DIENEME	31.0N 10.5E	31.4N 10.3E	0 NV	250 N N	890810	14:56:06	164 264 39 34
152	142	LIBYA	AL HAMMADAH AL HAMRA	29.5N 12.5E	29.6N 12.6E	5 NV	250 N N	890810	14:56:44	164 267 38 34
152	143	LIBYA	TIRENE DUNES	28.0N 11.5E	28.7N 12.7E	30 LO	250 N N	890810	14:57:01	164 268 37 34
152	144	LIBYA	RAMLAT EL MARZUCHA	26.5N 14.5E	25.9N 14.9E	0 NV	250 N Y	890810	14:57:55	165 271 35 34
152	145	LIBYA	RAMLAT EL MARZUCHA	26.5N 15.0E	25.7N 15.1E	0 NV	250 N Y	890810	14:57:59	165 272 35 34
152	146	LIBYA	UAI EN NAMUS, SERIR TIB.	25.0N 17.5E	24.7N 15.9E	0 LO	250 N N	890810	14:58:18	165 273 34 34
89	45	MADEIRA ISLANDS	ISLAND WAKE	33.0N 16.5W	32.7N 13.7W	30 LO	100 N N	890810	16:26:23	164 263 46 35
97	22	MADEIRA ISLANDS	PORTO SANTO	33.0N 16.5W	35.1N 16.0W	25 LO	250 N N	890810	16:25:25	164 259 42 35
97	23	MADEIRA ISLANDS	MADEIRA I. FUNCHAL	33.0N 17.0W	34.0N 15.0W	20 LO	250 N Y	890810	16:25:29	164 259 42 35
97	24	MADEIRA ISLANDS	MADEIRA I. FUNCHAL	33.0N 17.0W	34.0N 15.5W	20 LO	250 N Y	890810	16:25:34	164 260 42 35
97	25	MADEIRA ISLANDS	DESERTA GRANDE, BUGIO	32.5N 15.5W	34.1N 15.1W	40 LO	250 N N	890810	16:25:44	164 260 41 35
97	26	MADEIRA ISLANDS	MADEIRA I. OCEAN WAKE	32.5N 17.0W	33.5N 14.4W	15 LO	250 N N	890810	16:25:57	164 261 41 35
97	27	MADEIRA ISLANDS	MADEIRA I. OCEAN WAKE	32.5N 17.0W	33.1N 14.1W	20 LO	250 N N	890810	16:26:04	164 262 41 35
99	32	MADEIRA ISLANDS	AFRICAN SANDSTORM FRONT		37.5N 19.5W	50 HO	50 N N	890810	16:21:28	164 254 41 35
99	33	MADEIRA ISLANDS	AFRICAN SANDSTORM FRONT	33.5N 16.5W	35.0N 16.0W	50 HO	50 N N	890810	16:25:06	164 257 43 35
99	34	MADEIRA ISLANDS	AFRICAN SANDSTORM FRONT	32.5N 15.5W	35.1N 16.0W	50 HO	50 N N	890810	16:25:25	164 259 42 35
87	51	MALAYSIA	BORNEO	3.5N 113.5E	6.8N 111.8E	80 LO	100 N N	890811	09:18:19	164 284 23 46
78	81	MALTESE ISLANDS	MALTA, GOZO	34.0N 14.5E	34.0N 14.9E	50 NV	250 N N	890809	14:46:36	168 264 37 18
78	82	MALTESE ISLANDS	MALTA, GOZO	34.0N 14.5E	34.5N 15.1E	40 LO	250 N N	890809	14:46:44	168 264 37 18
71	25	MAURITANIA	COASTLINE, SAND DUNES	19.0N 15.0W	21.0N 12.0W	30 LG	100 N N	890808	17:43:42	164 289 22 4
71	26	MAURITANIA	COASTLINE, SAND DUNES	17.5N 15.0W	20.0N 11.5W	50 LO	100 N N	890808	17:44:00	164 288 21 4
71	27	MAURITANIA	SAND DUNES	18.0N 12.5W	19.3N 10.5W	10 LO	100 N N	890808	17:44:14	164 281 20 4
71	28	MAURITANIA	SAND DUNES	17.0N 12.5W	18.2N 10.1W	40 LO	100 N N	890808	17:44:34	164 281 19 4
97	28	MAURITANIA	SAND STORM, ATLANTIC CST		26.8N 8.0W	40 LO	250 N Y	890810	16:28:06	164 279 36 35
97	29	MAURITANIA	SAND STORM, ATLANTIC CST		26.6N 8.5W	40 LO	250 N Y	890810	16:28:09	164 278 36 35
97	30	MAURITANIA	SAND STORM, ATLANTIC CST		26.5N 8.5W	40 LO	250 N Y	890810	16:28:12	164 271 36 35
97	31	MAURITANIA	SAND STORM		26.3N 8.3W	50 LO	250 N Y	890810	16:28:16	164 271 36 35
97	32	MAURITANIA	SAND STORM		26.2N 8.3W	50 LO	250 N Y	890810	16:28:18	164 271 36 35
97	33	MAURITANIA	SAND STORM		26.0N 8.1W	60 LO	250 N Y	890810	16:28:22	164 271 35 35
90	52	MEDITERRANEAN SEA	SUNGLINT		39.3N 6.3E	20 LO	250 N N	890813	05:54:30	160 81 12 74
77	96	MEXICO	MOUNTAINS, CLOUDS		19.4N 94.9W	60 LO	250 N N	890809	12:47:23	161 77 18 17
77	97	MEXICO	MOUNTAINS, CLOUDS		19.7N 94.7W	60 LO	250 N N	890809	12:47:30	161 77 11 17
77	98	MEXICO	MOUNTAINS, CLOUDS		20.1N 94.6W	70 LO	250 N N	890809	12:47:37	161 77 11 17
77	99	MEXICO	MOUNTAINS, CLOUDS		20.8N 93.9W	80 LO	250 N N	890809	12:47:50	161 77 12 17
78	73	MEXICO	CLOUDS, MOUNTAINS		18.8N 95.3W	60 LO	100 N N	890809	12:47:06	161 77 10 17
78	74	MEXICO	CLOUDS, MOUNTAINS		19.0N 95.2W	60 LO	100 N N	890809	12:47:09	161 77 10 17
78	75	MEXICO	CLOUDS, MOUNTAINS		19.3N 95.0W	60 LO	100 N N	890809	12:47:15	161 77 10 17
85	2	MEXICO	SIERRA MADRE ORIENTAL	23.5N 99.0W	22.2N 100.0W	80 LO	100 O N	890810	12:56:50	161 76 8 33
85	3	MEXICO	SIERRA MADRE ORIENTAL	23.5N 99.5W	22.4N 100.6W	70 LO	100 O N	890810	12:56:54	161 76 8 33
85	4	MEXICO	SIERRA MADRE ORIENTAL	24.0N 100.0W	22.5N 100.2W	70 LO	100 O N	890810	12:57:04	161 77 8 33
85	5	MEXICO	SIERRA MADRE ORIENTAL	24.0N 100.0W	23.1N 100.1W	60 NV	100 N Y	890810	12:57:08	161 77 9 33
85	6	MEXICO	SIERRA MADRE ORIENTAL	24.0N 99.5W	23.4N 99.8W	60 NV	100 N Y	890810	12:57:16	161 77 9 33
85	7	MEXICO	SIERRA MADRE ORIENTAL	24.5N 99.5W	23.8N 99.6W	60 HV	100 O N	890810	12:57:20	161 77 9 33
85	8	MEXICO	GULF OF MEXICO COASTLINE	24.5N 98.0W	24.4N 99.2W	50 NV	100 O N	890810	12:57:31	161 77 10 33

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
85	9	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.9W 21.8N 98.9W	50 NV	100 O N	890810 12:57:39	161	77 10 33
85	12	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.9W 21.8N 98.9W	50 LO	100 O N	890810 12:58:08	161	78 12 33
85	13	MEXICO	GULF OF MEXICO COASTLINE	25.0N 97.5W 25.5N 97.6W	70 NV	100 O N	890810 12:58:11	161	78 12 33
86	2	MEXICO	SIERRA MADRE ORIENTAL	21.5N 99.5W 22.2N 100.8W	80 LO	100 O N	890810 12:56:47	161	76 8 33
86	3	MEXICO	SIERRA MADRE ORIENTAL	21.5N 100.0W 22.4N 100.6W	70 LO	100 O N	890810 12:56:51	161	76 8 33
86	4	MEXICO	SIERRA MADRE ORIENTAL	24.0N 100.0W 27.0N 100.2W	70 LO	100 O N	890810 12:57:01	161	77 8 33
86	5	MEXICO	SIERRA MADRE ORIENTAL	24.5N 100.8W 27.1N 100.1W	60 NV	100 N N	890810 12:57:05	161	77 8 33
86	6	MEXICO	SIERRA MADRE ORIENTAL	24.5N 100.0W 23.6N 99.8W	60 NV	100 N N	890810 12:57:13	161	77 9 33
86	7	MEXICO	SIERRA MADRE ORIENTAL	24.5N 99.5W 23.8N 99.6W	60 NV	100 O N	890810 12:57:17	161	77 9 33
86	8	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.9W 21.4N 99.2W	50 NV	100 O N	890810 12:57:28	161	77 10 33
86	9	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.8W 21.8N 98.8W	50 NV	100 O N	890810 12:57:37	161	78 10 33
86	12	MEXICO	GULF OF MEXICO COASTLINE	21.5N 98.8W 21.8N 98.8W	50 LO	100 N N	890810 12:58:05	161	78 12 33
86	13	MEXICO	GULF OF MEXICO COASTLINE	25.0N 98.0W 26.5N 97.6W	70 LO	100 O N	890810 12:58:09	161	78 12 33
87	14	MEXICO	RIO GRANDE, BIG BEND	28.0N 103.5W 31.3N 104.4W	70 LO	100 N N	890810 22:28:53	164	264 41 39
87	15	MEXICO	SIERRA MADRE ORIENTAL	26.5N 102.5W 30.9N 104.0W	80 HO	100 N N	890810 22:29:02	164	264 40 39
90	34	MEXICO	ARRECIFE ALACRAN	22.5N 89.5W 23.9N 90.9W	50 LO	250 N N	890812 21:17:16	164	267 45 70
90	35	MEXICO	MERIDA	21.5N 90.8W 23.3N 90.5W	50 LO	250 N N	890812 21:17:27	164	268 44 70
90	36	MEXICO	YUCATAN PENINSULA	21.5N 88.0W 22.9N 90.2W	40 LO	250 N N	890812 21:17:34	164	269 44 70
90	37	MEXICO	MERIDA	21.6N 89.5W 21.6N 89.3W	40 NV	250 N N	890812 21:17:54	164	270 43 70
94	45	MEXICO	ARRECIFE ALACRAN, YUC. CST	22.5N 89.5W 24.3N 91.2W	70 LO	250 N N	890812 21:17:04	164	267 45 70
94	66	MEXICO	CHETUMAL & BAY	19.0N 88.0W 20.7N 88.7W	85 LO	250 N N	890812 21:18:13	164	271 43 70
98	39	MEXICO	RIO GRANDE DELTA, COAST	25.5N 97.5W 29.3N 95.8W	60 LO	250 N N	890809 22:21:26	164	270 34 23
151	123	MEXICO	SOUTH COAST, DARK	16.0N 97.6W 16.0N 96.5W	75 NV	90 U Y	890809 12:16:32	161	76 8 17
151	124	MEXICO	SOUTH COAST, DARK	16.0N 96.5W	75 NV	90 U Y			
151	125	MEXICO	SOUTH COAST,	16.5N 96.5W 17.8N 95.9W	80 NV	90 U Y	890809 12:16:50	161	76 8 17
151	143	MEXICO	G. CALIF. BAJA, TIBURON I	20.8N 112.0W 27.5N 112.1W	50 LO	90 N N	890809 14:20:27	161	81 17 18
151	144	MEXICO	G. CALIF. BAJA, TIBURON I	20.8N 112.5W 28.2N 111.5W	50 LO	90 N N	890809 14:20:49	161	81 18 18
152	85	MEXICO	SW COAST, VERY DARK	18.0N 103.0W 18.6N 103.2W	40 NV	250 U Y	890810 12:55:35	161	75 4 33
152	86	MEXICO	SW COAST, VERY DARK	18.5N 103.0W 18.6N 102.5W	60 NV	250 U Y	890810 12:55:53	161	75 5 33
152	87	MEXICO	SAN LUIS POTOSI, AGR.	22.0N 101.5W 21.0N 100.9W	25 NV	250 U N	890810 12:56:36	161	76 7 33
152	88	MEXICO	SR MADRE ORIENTAL	23.5N 100.5W 22.5N 100.5W	50 LO	250 N N	890810 12:56:47	161	76 8 33
152	89	MEXICO	SR MADRE ORIENTAL	23.5N 99.5W 23.5N 99.8W	40 NV	250 N N	890810 12:57:05	161	77 9 33
152	90	MEXICO	CIUDAD VICTORIA, SR MAD.	24.0N 99.5W 23.9N 99.5W	40 NV	250 U N	890810 12:57:13	161	77 9 33
153	112	MEXICO	ISTHMUS OF TEHUANTEPEC	18.5N 96.5W	75 HO	90 N N			
73	99	MONGOLIA	BARUN URT	46.5N 113.5E 47.0N 113.7E	0 NV	250 N N	890812 06:43:03	163	219 53 60
75	36	MONGOLIA	CHINA/USSR BORDERS	48.5N 103.5E 48.4N 103.5E	60 NV	100 N N	890809 08:39:35	163	234 44 14
84	82	MONGOLIA	LAKE HOVSUOL	51.0N 100.5E 51.4N 100.3E	90 LO	100 N N	890813 04:10:12	162	192 53 76
87	32	MONGOLIA	DESERT	43.0N 105.0E 46.0N 100.3E	20 LO	100 N N	890811 07:26:50	163	238 50 45
87	33	MONGOLIA	DESERT	45.0N 107.0E 45.2N 107.4E	20 LO	100 N N	890811 07:27:07	163	238 50 45
88	79	MONGOLIA	LAKE OGUY	48.0N 103.5E 47.7N 107.2E	20 LO	250 N N	890811 07:28:15	163	234 51 45
88	80	MONGOLIA	LAKE ADGYN TSAAGAN	45.5N 100.0E 47.2N 98.0E	20 LO	250 N N	890811 07:26:26	163	226 50 45
88	81	MONGOLIA	LAKE BOONTSAGAAN	46.0N 99.5E 47.1N 98.3E	30 LO	250 N N	890811 07:26:31	163	227 50 45
151	6	MONGOLIA	HORGON L. ALTAI MTHS.	49.0N 89.0E 47.9N 89.2E	75 LO	90 N Y	890809 08:39:34	163	237 44 14
151	7	MONGOLIA	GOMI DESERT	45.5N 93.5E 45.5N 93.8E	80 NV	90 N N	890809 08:40:34	163	215 44 14
151	8	MONGOLIA	GOMI DESERT	44.0N 96.5E 43.4N 96.8E	40 NV	90 N Y	890807 08:41:23	163	210 43 18
151	9	MONGOLIA	GOMI DESERT	43.0N 98.0E 42.6N 98.0E	40 NV	90 N Y	890809 08:41:41	163	251 42 14
151	10	MONGOLIA	GOMI DESERT	43.0N 99.0E 42.0N 98.7E	40 NV	90 N Y	890809 08:41:53	163	252 42 14
152	224	MONGOLIA	TYUN R. NARYN R.	45.5N 101.8E 45.6N 100.8E	20 NV	250 N N	890811 07:24:54	163	231 50 45
152	225	MONGOLIA	BAGA BODO MTH. TSOGAAN R	44.0N 101.5E	20 NV	250 N N			
152	226	MONGOLIA	ONGYN R. ULAN L.	44.5N 103.5E 44.5N 102.6E	5 NV	250 N N	890811 07:27:20	163	234 50 45
152	227	MONGOLIA	GALBIN DESERT	42.0N 106.0E 42.1N 106.1E	20 NV	250 N N	890811 07:28:15	163	241 40 45
74	83	MOROCCO	STRAIT OF GIBRALTAR	36.0N 5.5W 36.0N 2.6W	0 LO	250 N N	890811 15:02:43	164	251 47 50
74	84	MOROCCO	STRAIT OF GIBRALTAR	36.0N 5.6W 36.5N 2.3W	0 LO	250 N N	890811 15:02:49	164	252 47 50
74	85	MOROCCO	MEDITERRANEAN COASTLINE	35.5N 4.0W 36.5N 1.6W	0 LO	250 N N	890811 15:03:01	164	253 47 50
151	182	MOROCCO	CASABLANCA, COAST	34.0N 7.5W	60 LO	90 N N			
152	183	MOROCCO	STR. GIBRALTAR, GIBRALTAR	35.5N 6.0W 33.0N 7.0W	40 LO	250 N N	890811 07:06:43	161	82 15 45
152	185	MOROCCO	STR. GIBRALTAR, GIBRALTAR	35.5N 5.5W 35.4N 5.6W	25 NV	250 N Y	890811 07:07:12	161	83 17 45
152	186	MOROCCO	TANGER, GIBRALTAR	35.5N 6.0W	30 NV	250 N Y			
152	187	MOROCCO	TANGER, GIBRALTAR	35.5N 5.5W 36.2N 4.7W	30 NV	250 N Y	890811 07:07:29	161	84 18 45
38	41	NEPAL	HIMALAYAS	29.5N 83.0E 28.6N 81.8E	70 NV	100 N Y	890810 10:25:43	164	269 34 31
88	42	NEPAL	HIMALAYAS	29.5N 83.0E 28.2N 82.1E	70 NV	100 N Y	890810 10:25:51	164	269 34 31
75	55	NETHERLANDS	NORTH SEA COASTLINE	52.0N 3.5E 54.7N 0.1E	70 LO	100 N N	890809 09:59:45	161	134 44 15
75	56	NETHERLANDS	IJSSELMEER	53.0N 5.5E 55.0N 1.6E	70 LO	100 N N	890805 09:59:59	161	138 45 15
77	54	NETHERLANDS	IJSSELMEER	53.0N 5.0E 57.0N 6.5E	70 LO	250 N N	890809 11:34:29	162	178 49 16
77	57	NETHERLANDS	IJSSELMEER	53.5N 5.5E 57.0N 7.2E	50 LO	250 N N	890809 11:34:35	162	179 49 16
77	58	NETHERLANDS	FED REP OF GERMANY	53.5N 7.0E 56.0N 8.1E	80 LO	250 N N	890809 11:34:43	162	181 49 16
77	59	NETHERLANDS	IJSSELMEER	53.0N 5.5E 56.0N 8.7E	80 LO	250 N N	890809 11:34:48	162	182 49 16
91	4	NETHERLANDS	ZUIDER ZEE	53.0N 5.0E 56.0N 6.5E	40 LO	250 N N	890813 08:04:26	160	129 39 78
98	75	NETHERLANDS	WAAL, RESTUARY, AGR.	52.0N 4.0E 51.5N 4.5E	60 NV	250 N N	890810 08:35:43	161	115 38 30
151	16	NETHERLANDS	NORTH SEA, W. FRISIAN IS	53.5N 4.0E 55.0N 1.0E	60 LO	90 N Y	890809 09:59:49	161	134 45 15

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	17	NETHERLANDS	NORTH SEA. W. FRISIAN IS	54.8N 5.0E		68 LO	90 N Y		
151	18	NETHERLANDS	NORTH SEA. W. FRISIAN IS	53.5N 5.0E 55.6N 5.2E		78 LO	90 N N 890809	10:00:20	161 143 46 15
80	41	NICARAGUA	HONDURAS BORDER	15.0N 83.5W 14.8N 84.8W		78 NV	250 N N 890812	21:20:02	165 277 38 70
151	189	NIGER	WADI D'AGORA. HIGH PLAINS	14.5N 2.5E		70 HO	90 N N		
89	47	NIGERIA	LAGOS	6.5N 3.0E 6.2N 4.7E		30 NV	100 N N 890810	16:34:35	165 284 19 35
97	35	NIGERIA	LAGOS. EBUTE METTA. CST	6.3N 3.5E 6.7N 4.4E		10 LO	250 N N 890810	16:34:16	165 284 19 35
153	18	NIGERIA	LAKE CHAD. MANGA REGION	13.5N 13.5E 11.8N 17.1E		70 HO	90 N N 890811	15:10:56	165 281 28 50
153	19	NIGERIA	LAKE CHAD. MANGA REGION	13.5N 13.5E 11.8N 17.1E		80 HO	90 N N 890811	15:11:06	165 281 28 50
153	35	NORTH KOREA	COAST	38.5N 128.0E 41.1N 131.1E		80 LO	250 N N 890811	22:14:38	161 87 29 55
153	36	NORTH KOREA	COAST	38.5N 127.5E 41.2N 131.2E		80 LO	250 N N 890811	22:14:40	161 87 29 55
153	37	NORTH KOREA	COAST	39.5N 127.0E 41.3N 131.4E		75 LO	250 N N 890811	22:14:43	161 87 29 55
76	101	NORTH SEA	CLOUDS		55.7N 4.5E	70 LO	250 N N 890809	10:00:30	161 143 46 15
77	55	NORTH SEA	CLOUDS		57.1N 4.5E	40	250 N N 890809	11:34:12	162 175 43 16
75	57	NORWAY	SOUTHERN COASTLINE	58.0N 7.5E 56.1N 8.3E		80 LO	100 N N 890809	10:01:01	161 147 46 15
75	58	NORWAY	SOUTHERN COASTLINE	58.5N 7.0E 56.3N 9.4E		80 LO	100 N N 890809	10:01:11	161 149 46 15
76	102	NORWAY	SOUTHWESTERN COASTLINE	58.5N 6.0E 56.2N 9.0E		60 LO	250 N N 890809	10:01:01	161 148 46 15
76	103	NORWAY	SOUTHWESTERN COASTLINE	58.5N 7.0E 56.3N 9.4E		60 LO	250 N N 890809	10:01:08	161 148 47 15
76	104	NORWAY	SOUTHWESTERN COASTLINE	58.5N 7.5E 56.4N 10.7E		60 LO	250 N N 890809	10:01:16	161 151 47 15
76	105	NORWAY	SOUTHWESTERN COASTLINE	58.5N 8.5E 56.7N 13.0E		70 LO	250 N N 890809	10:01:36	161 151 47 15
76	106	NORWAY	SOUTHWESTERN COASTLINE	58.0N 7.0E 57.0N 17.3E		70 LO	250 N N 890809	10:02:13	161 160 43 15
79	6	NORWAY	SOUTHERN COASTLINE	58.5N 6.5E 57.0N 6.9E		70 NV	100 N Y 890809	11:34:25	162 179 49 16
79	7	NORWAY	SOUTHERN COASTLINE	58.5N 6.5E 56.3N 8.3E		70 NV	100 N Y 890809	11:34:37	162 181 49 16
94	1	NORWAY	KRISTIANSAND. COAST	58.0N 8.0E 56.7N 10.2E		30 LO	250 N N 890812	10:29:40	161 160 47 63
94	2	NORWAY	COAST	59.0N 10.0E 56.6N 11.4E		5 LO	250 N N 890812	10:29:51	161 162 47 63
153	74 D	OCEAN	OCEAN EDDY. SUNGLINT			40 LO	90 N N		
153	74 E	OCEAN	CONVERGING CLOUD FRONTS			90 HO	90 N N		
99	25	OMAN	ARABIAN SEA CST. FRONTS	17.5N 57.5E 22.6N 63.3E		60 HO	50 N N 890810	11:57:52	165 275 32 32
99	78	OMAN	AKHDAR MTHS. RUB AL KHALI	22.5N 57.5E 23.9N 54.6E		30 HO	50 N N 890811	12:05:49	165 271 38 48
151	142	OMAN	MUSANDAM PEN. PERSIAN G.	23.5N 55.5E 22.5N 48.2E		25 HO	90 N N 890809	13:19:57	169 277 27 17
152	83	OMAN	NE REGION. PERSIAN GULF	22.0N 57.0E		30 HO	90 N N		
152	84	OMAN	NE REGION. PERSIAN GULF	22.5N 55.5E		HO	90 N N		
76	15	PACIFIC OCEAN	CLOUDS		21.9N 136.7E	90 HO	250 N N 890808	21:42:54	162 79 16 7
76	16	PACIFIC OCEAN	CLOUDS		22.6N 137.2E	80 HO	250 N N 890808	21:43:07	162 79 16 7
76	17	PACIFIC OCEAN	CLOUDS		25.0N 138.8E	90 LO	250 N N 890808	21:43:51	162 81 19 7
76	18	PACIFIC OCEAN	CLOUDS		36.8N 149.3E	80 HO	250 N N 890808	21:47:41	161 91 29 7
76	19	PACIFIC OCEAN	CLOUDS		37.3N 149.9E	80 HO	250 N N 890808	21:47:52	161 92 30 7
76	21	PACIFIC OCEAN	CLOUDS		40.6N 153.7E	80 HO	250 N N 890808	21:49:01	161 97 33 7
82	57	PACIFIC OCEAN	SHIP		40.3N 162.5E	5	250 N N 890809	22:26:50	161 93 28 22
82	58	PACIFIC OCEAN	CLOUDS		40.8N 169.1E	70	250 N N 890809	20:27:00	161 94 29 22
82	97	PACIFIC OCEAN	CLOUDS		52.1N 167.1E	90 HO	100 N N 890809	22:02:18	161 120 49 23
82	98	PACIFIC OCEAN	CLOUDS		52.5N 162.4E	90 HO	100 N N 890809	22:02:32	161 122 49 23
83	25	PACIFIC OCEAN	CLOUDS		30.4N 140.4W	90 HO	100 N N 890810	16:00:27	161 81 15 35
97	38	PACIFIC OCEAN	CLOUDS		57.1N 145.5W	95 LO	250 N N 890810	22:45:06	161 158 47 38
77	72	PAKISTAN	INDUS RIVER	28.5N 69.5E	30.3N 65.2E	0 LO	250 N N 890809	11:47:03	164 270 33 16
77	73	PAKISTAN	CLOUDS		29.2N 66.0E	70 NV	250 N Y 890809	11:47:23	164 271 32 16
77	74	PAKISTAN	CLOUDS		28.9N 66.3E	70 NV	250 N N 890809	11:47:29	164 271 32 16
77	75	PAKISTAN	CLOUDS		28.6N 66.5E	80 NV	250 N Y 890809	11:47:35	165 272 32 16
77	76	PAKISTAN	CLOUDS		28.3N 66.7E	90 NV	250 N Y 890809	11:47:40	165 272 32 16
77	77	PAKISTAN	INDUS RIVER		27.0N 67.2E	0	250 N N 890809	11:48:06	165 273 30 16
78	50	PAKISTAN	AFGHANISTAN BORDER	31.0N 67.0E 31.0N 64.5E		10 NV	100 N Y 890809	11:46:41	164 269 34 16
79	51	PAKISTAN	AFGHANISTAN BORDER	29.5N 65.0E 30.4N 65.0E		0 NV	100 N Y 890809	11:46:53	164 270 33 16
79	52	PAKISTAN	AFGHANISTAN BORDER	29.5N 66.0E 30.1N 65.3E		10 NV	100 N Y 890809	11:46:59	164 270 33 16
79	53	PAKISTAN	AFGHANISTAN BORDER	29.5N 66.5E 27.9N 67.1E		30 LO	100 N N 890809	11:47:41	165 272 31 16
79	55	PAKISTAN	INDUS RIVER	27.5N 68.5E 26.8N 68.0E		5 NV	100 N Y 890809	11:48:02	165 273 30 16
79	56	PAKISTAN	INDUS RIVER	28.0N 68.5E 26.6N 68.1E		5 NV	100 N Y 890809	11:48:06	165 274 30 16
79	57	PAKISTAN	INDUS RIVER	28.0N 69.5E 26.5N 68.2E		10 NV	100 N Y 890809	11:48:08	165 274 30 16
79	58	PAKISTAN	INDUS RIVER	28.5N 70.5E 26.3N 68.3E		10 LO	100 N Y 890809	11:48:11	165 274 30 16
79	59	PAKISTAN	INDUS RIVER	26.0N 68.5E 23.2N 70.4E		20 LO	100 N N 890809	11:48:18	165 276 27 16
80	36	PAKISTAN	HINDU KUSH	34.5N 73.5E 36.3N 74.7E		10 NV	100 N Y 890810	10:23:18	164 258 42 31
84	30	PAKISTAN	INDUS RIVER	27.0N 68.0E 29.3N 65.8E		10 LO	100 N N 890812	10:41:57	164 261 46 63
84	21	PAKISTAN	INDUS RIVER	28.0N 69.0E 28.9N 66.1E		5 LO	100 N N 890812	10:42:05	164 262 46 63
87	72	PAKISTAN	INDUS RIVER	29.5N 70.5E 29.6N 73.7E		30 LO	100 N N 890811	10:33:48	164 265 41 47
91	21	PAKISTAN	HINDUKUSH. AFGHANISTAN	36.0N 72.0E 38.2N 72.4E		60 LO	250 N N 890813	09:16:31	163 237 54 78
91	22	PAKISTAN	HINDUKUSH. AFGHANISTAN	36.0N 71.5E 38.0N 72.7E		20 LO	250 N N 890813	09:16:34	163 238 54 78
91	23	PAKISTAN	MANGLA RESERVOIR	33.5N 74.0E 36.0N 74.9E		20 LO	250 N N 890813	09:17:16	163 243 54 78
93	48	PAKISTAN	PAHAR MTHS. PYANDZH R.	36.5N 73.0E 37.3N 73.6E		10 NV	100 N Y 890810	10:22:45	164 256 43 31
151	100	PAKISTAN	SAHAN RA. MARGO DESERT	29.5N 65.5E 29.4N 65.1E		25 NV	80 N Y 890809	11:47:13	164 271 32 15
151	101	PAKISTAN	MAKRAN RANGES	30.0N 67.5E 28.8N 66.4E		40 LO	90 N Y 890809	11:47:26	164 271 32 16
151	102	PAKISTAN	INDUS R. VALLEY. AGR.	28.0N 68.0E 27.5N 67.5E		40 NV	90 N Y 890809	11:47:51	165 273 31 16
151	103	PAKISTAN	INDUS R. VALLEY. AGR.	27.0N 67.5E		NV	90 N Y		

**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	104	PAKISTAN	INDUS R. VALLEY, AGR.	28.0N 68.5E	26.9N 67.9E	40 LO	90 N Y 890809	11:42:02	163 273 30 16
151	105	PAKISTAN	INDUS R. VALLEY, AGR.	26.5N 68.0E	26.2N 68.4E	30 NV	90 N Y 890809	11:45:15	163 274 30 16
151	106	PAKISTAN	INDUS R. VALLEY, AGR.	26.0N 68.0E	25.3N 69.1E	40 NV	90 N Y 890809	11:48:31	163 275 29 16
151	107	PAKISTAN	INDUS R. VALLEY, DELTA	24.5N 69.0E	24.8N 69.5E	60 NV	90 N Y 890809	11:48:42	163 275 29 16
151	108	PAKISTAN	INDUS R. DELTA	24.0N 68.5E	24.0N 70.1E	70 LO	90 N Y 890809	11:48:56	163 276 28 16
151	109	PAKISTAN	INDUS R. VALLEY, DELTA	24.5N 69.5E	23.2N 70.6E	NV	90 N Y 890809	11:49:11	163 276 27 16
152	47	PAKISTAN	INDUS R. HINDU KUSH	36.9N 73.0E	36.5N 74.5E	30 LO	250 N N 890810	10:22:53	164 258 42 31
152	48	PAKISTAN	GILGIT R. HINDU KUSH	36.0N 74.5E		30 NV	250 N N		
152	49	PAKISTAN	INDUS R. KARAKORAM RANGE	35.0N 74.5E	34.0N 75.0E	40 LO	250 N N 890810	10:23:02	164 258 42 31
90	84	PAPUA NEW GUINEA	NEW BRITAIN	5.8S 150.0E	6.5S 149.8E	20 NV	250 N N 890813	06:29:26	163 289 21 76
92	8 N	PAPUA NEW GUINEA	BSMARCK ARCHIPELAGO	5.0S 149.5E		50 LO	100 N N		
94	72	PERU	RIO MARANON, RIO UCAYALI	5.0S 74.0W	3.4S 74.2W	40 LO	100 N N 890812	21:25:28	165 287 22 70
94	73	PERU	RIO UCAYALLI/PUIMAHUA CAN	5.5S 73.5W	3.8S 74.0W	40 LO	100 N N 890812	21:25:35	165 288 22 70
94	74	PERU	RIO UCAYALLI/RIO HUALLAGA	6.0S 73.5W	4.0S 73.8W	50 LO	100 N N 890812	21:25:39	165 288 22 70
94	75	PERU	RIO MARANON, RAIN FOREST	5.0S 75.0W	4.8S 73.4W	50 LO	100 N N 890812	21:25:53	165 288 21 70
94	76	PERU	RIO MARANON, RIO HUALLAGA	5.0S 76.0W	5.3S 73.1W	60 LO	100 N N 890812	21:26:01	165 288 21 70
94	77	PERU	RIO UCAYALLI/RAIN FOREST	6.0S 74.5W	3.9S 72.7W	50 LO	100 N N 890812	21:26:13	165 288 20 70
94	78	PERU	RIO UCAYALLI/RAIN FOREST	7.0S 75.0W	6.5S 72.4W	50 LO	100 N N 890812	21:26:23	165 288 19 70
94	79	PERU	RIO UCAYALLI/RAIN FOREST	8.5S 74.0W	7.3S 71.9W	40 LO	100 N N 890812	21:26:38	165 288 19 70
90	83	PHILIPPINE SEA	CLOUDS		25.4N 130.1E	70	250 N N 890813	06:19:47	164 264 48 76
100	21	PHILIPPINES	TINEG R. EFFL. ADRA R.	17.5N 120.5E	15.7N 121.5E	20 LO	250 N N 890812	07:45:02	165 277 36 61
153	72	PHILIPPINES	LUZON, NORTH END, FUGA I	18.5N 120.5E	17.1N 120.5E	60 NV	90 N N 890812	07:46:54	165 278 37 61
69	57	POLAND	GULF OF DANZIG	54.5N 18.0E	55.1N 18.3E	70 LO	100 N N 890810	11:45:27	162 184 50 32
89	58	POLAND	WISLA RIVER	53.5N 18.5E	54.5N 17.2E	70 NV	100 N N 890810	11:45:55	162 189 50 32
83	87	POLAND	GDANSK, GULF OF DANZIG	55.0N 19.0E	53.4N 17.8E	90 NV	100 N N 890812	07:22:54	160 112 34 61
93	88	POLAND	HEL PEN. KALININGRAD BAY	54.5N 18.5E	54.6N 16.5E	85 LO	100 N N 890810	11:45:44	162 188 50 32
98	76	POLAND	HEL PEN. G. DANZIG	54.5N 18.5E	55.3N 18.4E	70 LO	250 N N 890810	08:38:05	161 134 43 30
98	77	POLAND	HEL PEN. G. DANZIG	54.5N 19.0E	55.5N 19.4E	70 NV	250 N N 890810	08:38:14	161 135 43 30
99	21	POLAND	G. DANZIG, HEL PEN.	53.0N 20.0E	55.1N 18.3E	85 HO	50 N Y 890810	11:45:11	162 184 50 32
99	22	POLAND	G. DANZIG, HEL PEN.	53.5N 20.5E	54.9N 15.3E	85 HO	50 N Y 890810	11:45:21	162 186 50 32
99	23	POLAND	LOOKING SOUTHWEST, FRONTS		52.4N 23.5E	95 HO	50 N N 890810	11:46:44	162 209 50 32
99	24	POLAND	LOOKING SOUTH, FRONTS		52.5N 24.4E	95 HO	50 N N 890810	11:46:53	162 210 50 32
151	251	POLAND	BALTIC SEA, CST. HEL PEN	53.5N 17.5E		80 LO	90 N N		
151	252	POLAND	G. DANZIG, HEL PEN, GDANSK	54.5N 19.5E		80 LO	90 N N		
152	198	POLAND	AGRICULTURE	50.5N 18.5E	50.9N 18.3E	70 NV	250 N N 890811	07:13:14	161 108 34 45
152	199	POLAND	SYSTRZYCA R. LUKOW, AGR	51.5N 22.5E	52.5N 22.7E	40 NV	250 N Y 890811	07:14:04	161 114 36 45
152	200	POLAND	SYSTRZYCA R. LUKOW, AGR	51.5N 22.5E	53.2N 24.8E	40 LO	250 N Y 890811	07:14:26	161 117 37 45
75	9	PORTUGAL	CAPE SAINT VINCENT	38.6N 8.5W	39.1N 9.0W	50 NV	100 N N 890809	08:22:19	161 03 29 16
96	95	PORTUGAL	ATLANTIC CST. SRESTRALA	41.0N 8.0W	44.8N 5.0W	30 LO	250 N N 890810	14:51:28	163 238 48 34
96	96	PORTUGAL	ATLANTIC CST. SRESTRALA	39.8N 8.6W	44.5N 4.6W	35 HO	250 N N 890810	14:51:34	163 239 47 34
99	3	PORTUGAL	ATLANTIC CST. LISBON	38.5N 9.5W	41.2N 15.1W	75 HO	50 N N 890809	16:15:00	167 252 42 19
99	4	PORTUGAL	ATLANTIC CST. LISBON	38.0N 9.5W	40.5N 14.1W	75 HO	50 N N 890809	16:15:15	167 254 42 19
99	5	PORTUGAL	ATLANTIC CST. CAPE ST. VIN	38.0N 9.0W	38.7N 13.4W	75 HO	50 N N 890809	16:15:31	167 255 41 19
99	6	PORTUGAL	ATLANTIC CST. CAPE ST. VIN	38.0N 8.8W	39.3N 12.9W	80 HO	50 N N 890809	16:15:40	167 256 41 19
99	62	PORTUGAL	SOUTH COAST, G. CADIZ	36.0N 8.0W		80 HO	50 N N		
99	63	PORTUGAL	SOUTH COAST, G. CADIZ	36.5N 8.0W		50 HO	50 N N		
99	64	PORTUGAL	SOUTH COAST, G. CADIZ	37.0N 8.0W		40 HO	50 N N		
151	181	PORTUGAL	LISBON, COAST	38.5N 9.5W		50 LO	90 N N		
153	10	PORTUGAL	LISBON, COAST, FRONT	40.5N 9.5W	39.6N 5.7W	50 HO	90 N N 890811	15:02:00	163 245 49 50
153	11	PORTUGAL	LISBON, COAST, FRONT	38.5N 9.0W	38.5N 4.4W	40 HO	90 N N 890811	15:02:23	163 248 48 50
100	39	ROMANIA	BLK SEA CST. CONSTANTA	44.0N 28.5E	44.4N 26.1E	20 LO	250 N Y 890812	12:07:06	163 226 53 64
100	40	ROMANIA	BLK SEA CST. LUMENACIUS	44.5N 28.5E	44.1N 26.5E	30 LO	250 N Y 890812	12:07:12	163 227 53 64
100	41	ROMANIA	BLK SEA CST. CONSTANTA	44.0N 28.5E	43.9N 26.9E	20 LO	250 N Y 890812	12:07:18	163 228 53 64
153	74 J	ROMANIA	BLACK SEA, DANUBE R.	44.6N 28.0E		60 LO	90 N N		
78	23	SAUDI ARABIA	RED SEA	28.0N 35.5E	31.3N 40.7E	10 LO	250 N N 890809	13:16:57	168 268 35 17
78	24	SAUDI ARABIA	AN NAFUD	27.0N 41.0E	30.1N 42.3E	5 LO	250 N N 890809	13:17:32	168 270 33 17
78	25	SAUDI ARABIA	JABAL AJA	27.5N 41.5E	29.7N 42.7E	30 LO	250 N N 890809	13:17:40	168 270 33 17
78	26	SAUDI ARABIA	AL HUJAZ, RED SEA	26.0N 38.5E	28.1N 43.2E	50 LO	250 N N 890809	13:17:52	168 271 32 17
78	27	SAUDI ARABIA	IRRIGATED AGRICULTURE		28.5N 43.6E	20	250 N N 890809	13:18:03	168 272 32 17
78	28	SAUDI ARABIA	IRRIGATED AGRICULTURE		27.9N 44.1E	0	250 N N 890809	13:18:14	168 272 31 17
78	29	SAUDI ARABIA	IRRIGATED AGRICULTURE		27.1N 44.1E	30	250 N N 890809	13:18:30	168 273 31 17
78	30	SAUDI ARABIA	IRRIGATED AGRICULTURE		26.9N 44.9E	30	250 N N 890809	13:18:34	168 273 31 17
81	1	SAUDI ARABIA	CLOUDS		25.0N 46.3E	90 HO	100 N N 890809	13:19:22	169 275 29 17
81	2	SAUDI ARABIA	CLOUDS		24.8N 46.5E	80 HO	100 N N 890808	13:19:26	169 275 29 17
96	75	SAUDI ARABIA	RED SEA CST. UMM QUSUR I	28.0N 35.0E	28.4N 36.0E	0 NV	250 N N 890810	13:26:36	164 269 37 33
96	76	SAUDI ARABIA	STR. TIRAH, TIRAH I.	28.0N 34.5E	28.3N 36.0E	0 LO	250 N N 890810	13:26:38	164 269 37 33
96	77	SAUDI ARABIA	STR. TIRAH, TIRAH I.	28.0N 34.5E	27.7N 36.5E	0 LO	250 N N 890810	13:26:49	164 270 36 33
97	0 V	SAUDI ARABIA	BAHR AS SAFA, RUB KHAU	17.5N 47.0E		50 LO	100 N N		
100	45	SAUDI ARABIA	AR RIYAD, DESERT	24.5N 46.5E	25.8N 45.5E	20 LO	250 N N 890812	12:13:26	164 266 44 64
151	138	SAUDI ARABIA	AD DAKHA DESERT, PERS. G	24.0N 49.0E	32.2N 40.4E	70 HO	90 N N 890809	13:16:51	168 267 35 17



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	179	SAUDI ARABIA	AD DAHNA DESERT, PERS. G	24.0N 55.0E	29.7N 42.6E	20 HO	90 N N 890809	13:17:40	164 270 33 17
151	140	SAUDI ARABIA	AD DAHNA DESERT, PERS. G	23.0N 55.0E	27.3N 48.6E	20 HO	90 N N 890809	13:18:26	169 273 31 17
151	141	SAUDI ARABIA	PIVOT IRRIG. JAFURAH DES	23.3N 50.0E	23.3N 47.6E	25 LO	90 N N 890809	13:19:42	169 274 28 17
153	0 B	SAUDI ARABIA	TARUT AL QATIF, COAST	27.0N 50.5E		0 LO	250 N N		
153	0 C	SAUDI ARABIA	ABU ALI COAST	27.5N 50.0E		0 LO	250 N N		
153	74 R	SAUDI ARABIA	NAFUD AL MAZHUR, IRRIG.	28.0N 43.0E		15 LO	90 N N		
87	5 L	SICILY	PANORAMA	36.5N 15.5E		20 HO	100 N N		
85	99	SIERRA LEONE	COASTLINE	9.0N 13.0W	8.9N 12.3W	70 LO	100 O N 890812	16:50:21	165 282 32 35
85	100	SIERRA LEONE	COASTLINE	9.0N 13.0W	8.7N 12.2W	70 LO	100 O N 890812	16:50:25	165 282 32 35
85	101	SIERRA LEONE	COASTLINE	7.0N 11.5W	7.4N 11.4W	60 NV	100 N N 890812	16:50:49	165 283 31 35
86	93	SIERRA LEONE	COASTLINE, GUINEA	9.0N 13.0W	8.7N 12.2W	70 LO	100 N N 890812	16:50:22	165 282 32 35
86	94	SIERRA LEONE	COASTLINE	7.0N 11.5W	7.4N 11.4W	60 NV	100 N N 890812	16:50:46	165 283 31 35
86	95	SIERRA LEONE	COASTLINE	7.0N 11.5W	7.1N 11.3W	80 NV	100 N N 890812	16:50:51	165 283 31 35
81	92	SOUTH AMERICA	CLOUDS		4.5N 55.8W	60 LO	100 N N 890809	20:58:12	165 285 14 22
81	93	SOUTH AMERICA	CLOUDS		4.2N 55.4W	60 LO	100 N N 890809	20:58:25	165 285 13 22
81	94	SOUTH AMERICA	CLOUDS		3.3N 54.9W	60 NV	100 N Y 890809	20:58:42	165 285 12 22
81	95	SOUTH AMERICA	CLOUDS		2.9N 54.7W	60 NV	100 N Y 890809	20:58:48	165 285 12 22
81	96	SOUTH AMERICA	CLOUDS		2.5N 54.4W	60 NV	100 N Y 890809	20:58:56	165 285 11 22
82	89	SOUTH AMERICA	CLOUDS		3.0N 50.7W	80	250 N N 890809	20:58:34	165 285 12 22
82	90	SOUTH AMERICA	CLOUDS		2.0N 54.1W	90	250 N N 890809	20:58:53	165 286 11 22
82	91	SOUTH AMERICA	CLOUDS		1.4N 53.8W	70	250 N N 890809	20:59:04	165 286 10 22
82	92	SOUTH AMERICA	CLOUDS		1.0N 53.6W	60	250 N N 890809	20:59:11	165 286 10 22
84	80	SOUTH AMERICA	ANDES MOUNTAINS		22.1S 62.6W	40 HO	100 O N 890812	21:31:05	165 288 4 70
84	81	SOUTH AMERICA	CLOUDS		23.4S 61.7W	100 HO	100 N N 890812	21:31:29	165 288 3 70
77	44	SOUTH CHINA SEA	CLOUDS		3.6N 105.8E	100 HO	250 N N 890809	10:26:41	166 285 18 15
77	45	SOUTH CHINA SEA	CLOUDS		2.8N 106.3E	100 HO	250 N N 890809	10:24:56	166 284 6 15
77	46	SOUTH CHINA SEA	CLOUDS		2.2N 106.7E	100 HO	250 N N 890809	10:25:07	166 284 9 15
77	47	SOUTH CHINA SEA	CLOUDS		1.0N 107.4E	100 HO	250 N N 890809	10:25:29	166 284 8 15
95	33	SOUTH KOREA	JEJU I/STR. SOUTH END	34.5N 126.0E	32.2N 124.1E	75 LO	100 N Y 890810	07:23:12	164 264 39 29
95	34	SOUTH KOREA	JEJU I/STR. SOUTH END	34.5N 126.0E	32.4N 124.5E	75 LO	100 N Y 890810	07:23:20	164 264 39 29
74	78	SPAIN	ROTA, CADIZ	37.0N 6.0W	38.3N 4.8W	0 LO	250 N Y 890811	15:02:02	163 247 48 50
74	79	SPAIN	ROTA, CADIZ	36.5N 6.0W	38.6N 4.5W	0 LO	250 N Y 890811	15:02:07	163 247 48 50
74	80	SPAIN	STRAIT OF GIBRALTAR	36.0N 6.0W	38.3N 4.7W	5 LO	250 N N 890811	15:02:13	163 248 48 50
74	81	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W	38.1N 4.6W	0 LO	250 N N 890811	15:02:16	164 248 48 50
74	82	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W	37.0N 2.7W	0 LO	250 N N 890811	15:02:40	164 251 47 50
75	10	SPAIN	CORD. CARPETOVETONICA	40.5N 5.5W	39.0N 2.1W	5 LO	100 N N 890809	06:22:35	161 94 30 14
75	11	SPAIN	CORD. CARPETOVETONICA	41.0N 3.5W	41.5N 6.1W	5 LO	100 N N 890809	06:23:10	161 96 32 14
75	12	SPAIN	CORDILLERA CANTABRICA	43.0N 5.0W	42.1N 5.3W	30 NV	100 N Y 890809	06:23:23	161 97 32 14
75	13	SPAIN	CORDILLERA CANTABRICA	43.0N 5.5W	42.2N 5.1W	30 NV	100 N Y 890809	06:23:26	161 98 32 14
75	14	SPAIN	CORDILLERA CANTABRICA	43.0N 3.5W	42.6N 4.6W	30 NV	100 N Y 890809	06:23:34	161 98 33 14
75	15	SPAIN	PYRENEES	42.5N 0.0	43.2N 3.7W	40 LO	100 N N 890809	06:23:48	161 99 33 14
75	16	SPAIN	PYRENEES	42.5N 0.5E	43.7N 3.1W	40 LO	100 N N 890809	06:23:58	161 100 34 14
83	21	SPAIN	STRAIT OF GIBRALTAR	37.0N 6.0W	39.5N 5.5W	5 LO	100 N N 890811	15:01:53	163 245 48 50
83	25	SPAIN	PORTUGAL BORDER	41.5N 6.0W	40.7N 7.3W	5 NV	100 N N 890812	07:17:24	168 85 18 61
87	16	SPAIN	STRAIT OF GIBRALTAR	36.0N 5.5W	34.6N 6.3W	30 NV	100 N N 890811	07:07:01	161 82 16 45
87	17	SPAIN	MEDITERRANEAN COASTLINE	38.0N 2.0W	37.1N 3.0W	5 NV	100 N N 890811	07:07:52	161 85 18 45
87	18	SPAIN	PYRENEES	42.0N 1.5E	40.4N 0.0W	40 LO	100 N N 890811	07:09:00	161 88 22 45
87	19	SPAIN	PYRENEES	42.0N 1.0E	40.6N 0.2E	50 LO	100 N N 890811	07:09:04	161 88 22 45
88	33	SPAIN	STRAIT OF GIBRALTAR	36.5N 5.5W	35.2N 5.8W	30 NV	250 N N 890811	07:07:20	161 83 16 45
88	34	SPAIN	ROTA	37.0N 6.5W	36.0N 5.0W	20 NV	250 N N 890811	07:07:36	161 83 17 45
88	35	SPAIN	MOUNTAINS	38.0N 3.0W	36.6N 4.3W	0 NV	250 N N 890811	07:07:49	161 84 18 45
88	36	SPAIN	PYRENEES	42.0N 1.0E	41.2N 1.0E	20 NV	250 N N 890811	07:09:26	161 89 23 45
95	40	SPAIN	RIO DUERO WATERSHED	43.0N 6.0W	44.1N 10.2W	60 LO	100 N N 890810	08:32:34	161 97 30 30
95	41	SPAIN	RIO DUERO WATERSHED	43.0N 6.0W	44.3N 9.9W	70 HO	100 N N 890810	08:32:39	161 97 30 30
95	42	SPAIN	RIO DUERO WATERSHED	43.0N 6.0W	44.5N 9.6W	70 LO	100 N N 890810	08:32:43	161 98 30 30
97	4	SPAIN	BISCAY CST. CANTABRICA MT	43.5N 6.0W	44.7N 4.8W	40 LO	250 N N 890810	14:51:27	163 239 44 34
97	5	SPAIN	PISURGA R. BURGOS, AGR.	42.5N 3.5W	44.5N 4.5W	30 LO	250 N N 890810	14:51:32	163 239 47 34
97	6	SPAIN	CANTABRICA MTHS. RESERV.	43.0N 3.5W	44.3N 4.3W	35 LO	250 N N 890810	14:51:35	163 240 47 34
97	7	SPAIN	RIO Esla VALLEY, AGR.	42.5N 5.0W	43.0N 3.5W	20 LO	250 N N 890810	14:51:47	163 241 47 34
97	8	SPAIN	MED. CST.	41.0N 1.5E	41.3N 0.7W	50 LO	250 N N 890810	14:52:32	163 246 46 34
97	9	SPAIN	MED. COAST	40.5N 0.5E	41.5N 0.4W	40 LO	250 N N 890810	14:52:38	163 247 46 34
98	63	SPAIN	RIA DE PONTE VERDIA, CST	42.5N 6.0W	44.1N 10.3W	60 LO	250 N N 890810	08:32:29	161 97 30 30
98	64	SPAIN	CORD. CANTABRICA	42.5N 6.5W	44.0N 9.1W	40 LO	250 N N 890810	08:32:46	161 98 30 30
98	65	SPAIN	RIO Esla HEADWATER AREA	42.5N 6.0W	45.1N 8.7W	50 LO	250 N N 890810	08:32:53	161 99 31 30
98	66	SPAIN	RIO Esla HEADWATER AREA	43.0N 5.5W	45.6N 7.8W	45 LO	250 N N 890810	08:33:06	161 100 31 30
98	67	SPAIN	RIO Esla HEADWATER AREA	42.5N 5.5W	45.9N 7.3W	35 LO	250 N N 890810	08:33:13	161 100 32 30
98	68	SPAIN	RIO Ebro HEADWATER AREA	43.0N 5.0W	46.0N 5.6W	70 LO	250 N N 890810	08:33:37	161 103 33 30
152	128	SPAIN	INT. WAVES, BISCAY COAST	44.0N 6.0W	43.7N 3.3W	60 LO	250 N N 890810	14:51:53	163 241 47 34
152	129	SPAIN	EBRO R. SEM-ARID REGION	42.5N 2.0W	42.7N 1.9W	70 LO	250 N N 890810	14:52:15	163 244 47 34
152	130	SPAIN	VALENCIA, IBERICO MTHS.	40.0N 0.5W	41.3N 0.0W	50 NV	250 N N 890810	14:52:47	163 247 46 34

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
152	131	SPAIN	IBERICO MTHS. MED COAST	48.5N 0.0		68 NV	250 N H		
152	184	SPAIN	STR. GIBRALTAR, GIBRALTAR	36.8N 6.8W		58 LO	250 N H		
152	184	SPAIN	SAN JAVIER LAG. COAST	36.5N 0.0	38.0N 2.8W	8 LO	250 N H	890811 07:08:35	161 85 19 45
153	12	SPAIN	CADIZ, ROTA, STR. GIBR.	37.0N 7.0W	36.9N 2.6W	40 HO	90 N H	890811 15:02:57	164 251 47 50
153	13	SPAIN	STR. GIBR. TANGIER, GIBR.	36.8N 6.8W	36.5N 2.2W	30 HO	90 N H	890811 15:03:05	164 252 47 50
153	14	SPAIN	STR. GIBR. OCEAN FRONT	36.8N 6.5W	36.3N 2.8W	30 HO	90 N H	890811 15:03:09	164 252 47 50
153	15	SPAIN	ALBORAN SEA, OCEAN FRONT	36.5N 5.5W	34.8N 0.4W	30 HO	90 N H	890811 15:03:40	164 255 46 50
153	16	SPAIN	ALBORAN SEA, OCEAN FRONT	37.0N 2.5W	34.5N 0.2W	20 HO	90 N H	890811 15:03:45	164 256 46 50
153	17	SPAIN	ALBORAN SEA, OCEAN FRONT	37.5N 3.5W	33.9N 0.4E	20 HO	90 N H	890811 15:03:57	164 257 45 50
153	63	SPAIN	RIO QUERO BASIN	48.5N 4.5W	43.1N 4.1W	10 LO	90 N H	890812 07:18:27	168 88 20 61
153	82	SPAIN	LISBON, COAST, PANORAMA	38.0N 7.0W		70 HO	90 N H		
153	83	SPAIN	STR. OF GIBRALTAR	37.0N 7.0W		68 HO	90 N H		
153	84	SPAIN	STR. OF GIBRALTAR	37.0N 5.5W		68 HO	90 N H		
77	85	SRI LANKA	SOUTHEASTERN COASTLINE	6.5N 82.0E	9.0N 79.7E	78 LO	250 N H	890809 11:53:36	166 284 15 16
77	86	SRI LANKA	SOUTHEASTERN COASTLINE	6.5N 81.5E	8.3N 80.2E	58 LO	250 N H	890809 11:53:48	166 284 16 16
79	72	SRI LANKA	CLOUDS	8.5N 80.5E	8.0N 80.4E	70 NV	100 N H	890809 11:53:48	166 284 16 16
151	118	SRI LANKA	SE COAST INDIA, NW CST	9.0N 80.0E	8.8N 79.9E	68 NV	90 U Y	890809 11:53:34	166 284 15 16
151	119	SRI LANKA	NW CST, NE CST, DARK	8.5N 81.0E	8.0N 80.4E	68 NV	90 U Y	890809 11:53:49	166 284 16 16
151	120	SRI LANKA	CENTRAL REGION, DARK	7.5N 81.0E	7.4N 80.7E	70 NV	90 U Y	890809 11:54:00	166 285 14 16
151	121	SRI LANKA	CENTRAL REGION, DARK	7.0N 81.0E	6.6N 81.2E	70 NV	90 U Y	890809 11:54:16	166 285 13 16
151	122	SRI LANKA	SE REGION, S COAST, DARK	6.5N 81.5E	5.8N 81.6E	75 NV	90 U Y	890809 11:54:28	166 285 12 16
78	92	SUDAN	SAND DUNES	18.2N 30.4E		30	250 N H	890809 14:53:07	170 282 20 18
78	93	SUDAN	SAND DUNES	18.2N 30.8E		50	250 N H	890809 14:53:12	170 282 20 18
78	94	SUDAN	SAND DUNES	18.2N 31.3E		40	250 N H	890809 14:53:26	170 282 19 18
78	95	SUDAN	STREAM	18.2N 31.8E		10	250 N H	890809 14:53:43	170 283 18 18
81	48	SUDAN	SAND DUNES	18.3N 30.5E		40	100 N H	890809 14:53:18	170 282 20 18
81	41	SUDAN	AGRICULTURE	18.3N 31.8E		40	100 N H	890809 14:53:54	170 283 18 18
81	91	SURINAM	COURANTYNE RIVER	6.8N 57.0W	6.4N 56.7W	40 NV	100 N H	890809 20:57:16	165 285 15 22
82	84	SURINAM	COURANTYNE RIVER	6.6N 57.0W	6.3N 56.9W	10 NV	250 N H	890809 20:57:25	165 284 15 22
82	88	SURINAM	COURANTYNE RIVER	6.8N 57.0W	6.5N 55.6W	30 NV	250 N H	890809 20:58:08	165 285 13 22
75	59	SWEDEN	GULF OF BOTHNIA	59.5N 18.5E	57.0N 17.4E	80 LO	100 N H	890809 10:02:21	161 161 48 15
80	1	SWEDEN	SHIP WAKE, BALTIC SEA	56.0N 15.0E	57.1N 12.7E	70 LO	100 N H	890810 10:11:20	161 157 47 31
80	2	SWEDEN	SHIP WAKE, BALTIC SEA	55.5N 15.5E	57.1N 14.1E	60 LO	100 N H	890810 10:11:32	161 159 47 31
80	3	SWEDEN	GOTLAND	57.5N 19.0E	57.1N 15.8E	80 LO	100 N H	890810 10:11:46	161 162 47 31
80	4	SWEDEN	STOCKHOLM	59.5N 17.0E	57.1N 19.1E	70 LO	100 N H	890810 10:12:14	162 167 48 31
80	56	SWEDEN	BALTIC SEA COASTLINE	56.5N 16.0E	55.4N 12.9E	60 LO	100 N H	890810 11:45:16	162 192 50 32
91	7	SWEDEN	OLAND	57.0N 16.5E	57.1N 17.5E	20 NV	250 U H	890813 09:06:00	161 143 43 78
93	6	SWEDEN	L. VATTERN	58.5N 15.0E	57.0N 9.1E	80 LO	250 N H	890810 10:10:44	161 152 46 31
93	7	SWEDEN	LAKE COUNTRY	59.5N 16.5E	57.1N 12.0E	70 LO	250 N H	890810 10:11:59	161 156 47 31
93	8	SWEDEN	STOCKHOLM LAKES	59.5N 18.0E	57.1N 12.4E	70 LO	250 N H	890810 10:11:12	161 157 47 31
93	9	SWEDEN	LAKE VATTERN	58.5N 14.5E	57.1N 13.4E	70 LO	250 N H	890810 10:11:22	161 159 47 31
93	10	SWEDEN	LAKE VATTERN, VISINGS I.	58.0N 14.5E	57.1N 13.9E	60 LO	250 N H	890810 10:11:25	161 159 47 31
93	11	SWEDEN	LAKE VATTERN, VISINGS I.	58.5N 15.0E	57.1N 14.4E	60 LO	250 N H	890810 10:11:29	161 160 47 31
93	12	SWEDEN	STOCKHOLM, EAST COAST	59.0N 17.5E	57.1N 18.1E	25 LO	250 N Y	890810 10:12:01	161 165 48 31
93	13	SWEDEN	STOCKHOLM, GRANFIARDEN	59.5N 17.5E	57.1N 18.6E	30 LO	250 N Y	890810 10:12:05	161 166 48 31
93	78	SWEDEN	L. VATTERN	58.0N 16.0E	55.1N 14.2E	80 LO	100 N H	890810 11:45:21	162 194 50 32
93	79	SWEDEN	OLAND I. KALMAR STR.	56.5N 15.5E	55.1N 14.5E	75 N	100 N H	890810 11:45:26	162 194 50 32
152	5	SWEDEN	LAKE VATTERN	58.5N 13.0E	56.0N 8.7E	90 LO	250 N H	890810 10:10:31	161 152 46 31
152	6	SWEDEN	LAKE VATTERN, L. VANERN	58.5N 15.0E	57.6N 10.8E	80 LO	250 N H	890810 10:10:49	161 155 46 31
152	7	SWEDEN	LAKE VATTERN, AGR.	57.5N 15.5E		90 LO	250 N H		
152	8	SWEDEN	LAKE VATTERN, AGR.	58.0N 13.0E	57.1N 12.0E	85 LO	250 N H	890810 10:11:00	161 156 47 31
152	9	SWEDEN	SOUTH COAST	56.5N 14.5E		50 LO	250 N Y		
152	10	SWEDEN	SOUTH COAST	56.5N 14.0E	57.1N 13.1E	80 LO	250 N Y	890810 10:11:13	161 159 47 31
152	11	SWEDEN	SE COAST, BILGE PUMPING	56.0N 16.0E		50 LO	250 N H		
152	12	SWEDEN	OLAND I. KALMAR STR.	57.0N 16.0E	57.1N 15.8E	70 LO	250 N H	890810 10:11:32	161 162 47 31
152	13	SWEDEN	KALMAR STR. AGR.	57.5N 16.0E		70 LO	250 N H		
152	14	SWEDEN	GOTLAND I. BALTIC SEA	59.0N 18.0E	57.1N 17.6E	70 LO	250 N H	890810 10:11:47	161 164 48 31
152	15	SWEDEN	GOTLAND I. BALTIC SEA	57.5N 18.0E	57.1N 18.0E	60 NV	250 N H	890810 10:11:51	161 165 48 31
152	65	SWEDEN	VATTERN, L. E CST BALTIC	59.5N 15.5E	55.6N 11.9E	70 LO	250 N H	890810 11:45:51	162 190 50 32
152	66	SWEDEN	BALTIC SEA, EAST CST.	59.5N 20.0E	55.0N 14.9E	60 HO	250 N H	890810 11:45:19	162 195 50 32
152	67	SWEDEN	STOCKHOLM, E CST BALTIC	59.5N 19.0E	54.5N 17.2E	60 LO	250 N H	890810 11:45:41	162 199 50 32
74	42	SWITZERLAND	ALPS	46.0N 7.5E	47.7N 5.3E	58 LO	250 N H	890811 13:28:08	163 222 51 49
74	43	SWITZERLAND	ALPS	46.5N 8.0E	47.5N 5.5E	50 LO	250 N H	890811 13:28:11	163 223 51 49
74	44	SWITZERLAND	ALPS	46.5N 8.5E	47.4N 5.7E	88 LO	250 N H	890811 13:28:14	163 223 51 49
74	45	SWITZERLAND	ALPS	47.0N 8.0E	47.1N 6.3E	50 NV	250 N H	890811 13:28:22	163 224 51 49
74	46	SWITZERLAND	BODENSEE	47.5N 9.5E	46.4N 7.5E	50 LO	250 N H	890811 13:28:39	163 227 51 49
74	47	SWITZERLAND	LAKE COMO	46.0N 9.0E	45.9N 8.4E	68 NV	250 N H	890811 13:28:51	163 228 51 49
88	43	SWITZERLAND	ALPS	47.0N 8.0E	45.9N 8.0E	70 NV	250 N H	890811 07:11:14	161 97 28 45
100	1	SWITZERLAND	AARE R. BERN, THUNDERSEE	46.5N 8.0E	49.0N 6.1E	10 LO	250 N H	890812 07:20:32	169 99 28 61
100	2	SWITZERLAND	LEUCHATEL, BERN, JURAS MT	47.0N 7.0E	49.3N 6.6E	20 LO	250 N H	890812 07:20:38	169 100 28 61



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON.	NADIR LAT. LON.	CC	TL	FL	E & DATE	GMT	SUN AL. AZ EL OR
100	3	SWITZERLAND	AARE R.BERN, THUNDERSEE	47.0N 7.5E	49.4N 6.9E	40	LO	250	N N	890812 07:20:42	160 100 28 61
153	8AT	SWITZERLAND	BERNER ALPS, BERN	46.5N 8.0E		40	LO	90	N N		
153	8AU	SWITZERLAND	BERNER ALPS	46.5N 8.0E		50	LO	90	N N		
153	8AV	SWITZERLAND	BERNER ALPS, BERN	47.0N 8.0E		60	LO	90	N N		
78	19	SYRIA	EUPHRATES RIVER	36.0N 39.0E	37.3N 35.4E	0	LO	250	N N	890809 13:15:08	167 240 39 17
78	20	SYRIA	EUPHRATES RIVER	35.0N 40.5E	37.0N 35.7E	0	LO	250	N N	890809 13:15:14	167 241 39 17
79	182	SYRIA	EUPHRATES RIVER	36.0N 38.0E	38.8N 32.6E	20	HO	100	N N	890809 13:16:16	167 254 41 17
79	185	SYRIA	ISRAEL SEA OF GAULEE	33.0N 36.0E	34.1N 34.7E	5	LO	100	N N	890809 13:16:18	168 265 36 17
100	43	SYRIA	ASI R. HAMAH, HAMS, AFLD	35.0N 37.0E	36.2N 34.4E	5	LO	250	N N	890812 12:10:04	164 248 50 64
100	44	SYRIA	QUWAYO R. HALAB, AGR.	36.0N 37.0E	35.5N 37.1E	0	LO	250	N N	890812 12:10:18	164 249 50 64
83	104	TAIWAN	FORMOSA STRAIT	23.0N 120.0E	23.3N 116.3E	70	LO	100	N N	890812 07:42:50	165 270 42 61
87	41	TAIWAN	SOUTHERN END, CLOUDS	23.0N 120.5E	24.3N 123.5E	50	LO	100	N N	890811 07:54:15	165 271 37 45
87	42	TAIWAN	NORTHERN END, CLOUDS	24.5N 121.5E	23.9N 123.6E	50	LO	100	N N	890811 07:54:23	165 272 37 45
87	43	TAIWAN	NORTHERN END, CLOUDS	25.0N 122.0E	23.6N 123.8E	50	LO	100	N N	890811 07:54:28	165 272 37 45
99	65	TAIWAN	ENTIRE ISLAND, FORMOSA ST	26.5N 120.0E	20.9N 118.6E	30	HO	50	N N	890811 07:52:39	164 265 41 45
99	66	TAIWAN	ENTIRE ISLAND, FORMOSA ST	25.5N 120.5E	28.2N 120.3E	30	HO	50	N N	890811 07:52:56	164 267 40 45
152	218	TAIWAN	EAST COAST	23.5N 120.0E	26.1N 122.8E	20	LO	250	N N	890811 07:53:38	165 269 39 45
152	219	TAIWAN	EAST COAST	24.0N 120.0E	25.8N 122.2E	20	LO	250	N N	890811 07:53:42	165 269 38 45
153	33	TAIWAN	FOG, COAST CHINA	23.0N 121.0E	33.0N 122.3E	60	HO	250	N N	890811 22:11:52	161 79 11 35
77	39	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	12.4N 100.7E	30	NV	250	N Y	890809 10:22:03	165 283 18 15
77	40	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	12.1N 100.8E	30	NV	250	N Y	890809 10:22:08	165 283 17 15
77	41	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	11.9N 101.0E	30	NV	250	N Y	890809 10:22:12	165 283 17 15
77	42	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	10.4N 101.9E	80	LO	250	N N	890809 10:22:39	165 284 16 15
77	43	THAILAND	BIGHT OF BANGKOK	13.0N 101.0E	10.0N 102.1E	90	LO	250	N N	890809 10:22:47	165 284 16 15
151	60	THAILAND	BIGHT OF BANGKOK, AGR.	12.5N 102.5E	14.5N 99.4E	85	HO	90	N N	890809 10:21:20	165 282 20 15
97	13	TUNISIA	TUNIS, BIZERTE, MED. CST	37.0N 10.0E	34.9N 7.1E	0	LO	250	N N	890810 14:54:56	164 259 42 34
152	138	TUNISIA	TOZEUR, GAFSA, METLAOU	34.0N 8.0E	34.2N 7.9E	10	NV	250	N N	890810 14:55:14	164 261 41 34
152	139	TUNISIA	QJERBA, L. BOU GRARA LAG.	33.5N 10.5E	32.0N 9.9E	0	NV	250	N N	890810 14:55:58	164 264 40 34
74	12	TURKEY	MOUNTAINS, CLOUDS	39.6N 40.3E		50	LO	250	N N	890811 12:00:43	164 246 48 48
74	13	TURKEY	MOUNTAINS, CLOUDS		39.5N 40.4E	40	LO	250	N N	890811 12:00:45	164 246 48 48
84	28	TURKEY	DARDANELLES	40.5N 27.0E	43.4N 27.5E	50	LO	100	N N	890812 12:07:36	163 229 53 64
84	29	TURKEY	BOSPORUS, MARMARA SEA	41.0N 29.0E	42.8N 28.5E	60	NV	100	N N	890812 12:07:51	163 231 53 64
87	101	TURKEY	LAKE VAN	38.5N 43.0E	37.4N 42.8E	70	NV	100	N N	890811 12:01:33	164 251 47 48
87	102	TURKEY	KURDISTAN	38.0N 41.0E	36.4N 43.8E	20	LO	100	N N	890811 12:01:52	164 253 46 48
152	72	TURKEY	BLACK SEA, BATUMI, EDDY	41.0N 41.0E	44.1N 42.6E	30	LO	250	N Y	890810 11:50:41	163 241 47 32
152	73	TURKEY	BLACK SEA, EDDY, SUNGLT	41.5N 42.0E	43.5N 42.9E	20	LO	250	N Y	890810 11:50:54	163 243 47 32
152	74	TURKEY	BLACK SEA, EDDIES, SUNGLT	41.0N 42.5E		20	LO	250	N Y		
152	75	TURKEY	KEBAN RES. KARADENIZ MTN	40.0N 38.0E	42.0N 43.8E	50	LO	250	N N	890810 11:51:09	163 244 46 32
152	76	TURKEY	KEBAN RES. KARADENIZ MTN	42.0N 40.0E	42.6N 44.1E	40	LO	250	N N	890810 11:51:14	163 245 46 32
152	77	TURKEY	VAN L. TOROSULAR MTHS.	37.5N 42.5E	42.3N 44.6E	20	LO	250	N N	890810 11:51:22	163 246 46 32
152	78	TURKEY	KEBAN RES. TOROSULAR MTN	38.0N 39.0E	41.5N 45.2E	40	HO	250	N N	890810 11:51:31	163 247 46 32
153	74 K	TURKEY	MARMARA SEA, BOSPORUS	41.5N 28.5E		50	LO	90	N N		
153	74 L	TURKEY	MARMARA SEA, BOSPORUS	41.5N 27.5E		50	LO	90	N N		
153	74 M	TURKEY	COAST, CLOUD EDDY	42.5N 33.5E		50	LO	90	N N		
153	74 N	TURKEY	KOROGLU MTHS. L. AKSEHR	40.0N 31.5E		50	LO	90	N N		
153	74 P	TURKEY	ISKENDERUN GULF, ASSAD RE	36.5N 34.5E		25	LO	90	N N		
73	102	TURKS AND CAICOS IS.	PARTIAL FRAME	22.0N 71.5W		50	LO	100	N N		
77	50	TURKS AND CAICOS IS.	CAICOS ISLANDS	22.0N 72.0W	20.2N 71.0W	40	LO	250	U N	890809 11:17:18	161 77 12 16
153	0 D	UNITED ARAB EMIRATES	UMM SHAIF OIL FIELD, FIRE	25.5N 53.0E		0	LO	250	N N		
153	0 E	UNITED ARAB EMIRATES	ABU DHABI, TRUCIAL CST	24.5N 54.5E		0	NV	250	N N		
82	11	USA	CLOUDS, MOUNTAINS		45.3N 115.5W	80	LO	250	N N	890809 15:57:15	161 102 34 19
83	59	USA	CLOUDS		45.3N 105.4W	90	LO	100	N N	890811 21:01:48	163 228 51 54
99	6	USA	CLOUDS, APPALACHIAN MTS.		36.9N 79.2W	80	LO	250	N N	890812 19:42:33	163 244 52 68
71	53	USA-AK	MALASPINA GLACIER	59.5N 140.5W	56.9N 137.0W	60	LO	100	N N	890808 20:27:20	162 183 48 6
71	70	USA-AK	GULF OF ALASKA COASTLINE	59.5N 140.0W	57.1N 150.2W	70	LO	100	N N	890808 21:59:15	162 177 49 7
71	71	USA-AK	GULF OF ALASKA COASTLINE	60.0N 145.5W	57.1N 149.1W	70	LO	100	N N	890808 21:59:25	162 179 49 7
71	72	USA-AK	MALASPINA GLACIER	59.0N 143.0W	56.7N 142.5W	60	LO	100	N N	890808 22:00:22	162 189 49 7
73	30	USA-AK	KVICHAK BAY	58.5N 157.5W	56.6N 163.3W	50	LO	250	N N	890811 20:50:57	161 136 42 54
73	31	USA-AK	ALASKA PENINSULA	57.5N 158.0W	56.7N 163.3W	70	LO	250	N N	890811 20:51:01	161 137 42 54
73	32	USA-AK	ALASKA PENINSULA	56.5N 159.0W	56.7N 163.8W	70	LO	250	N N	890811 20:51:04	161 137 42 54
73	33	USA-AK	ALASKA PENINSULA	56.5N 158.5W	56.8N 162.2W	60	LO	250	N N	890811 20:51:11	161 138 43 54
73	34	USA-AK	GLACIERS, MOUNTAINS	60.5N 142.5W	57.1N 157.0W	50	HO	250	N N	890811 20:51:54	161 145 44 54
73	35	USA-AK	GLACIERS, MOUNTAINS	59.5N 139.0W	57.1N 156.5W	70	HO	250	N N	890811 20:52:00	161 146 44 54
73	36	USA-AK	ST. ELIAS MOUNTAINS	58.0N 135.0W	57.1N 156.1W	60	HO	250	N N	890811 20:52:03	161 146 44 54
73	37	USA-AK	ISLANDS, COAST MOUNTAINS	56.5N 132.5W	56.3N 134.8W	30	LO	250	N N	890811 20:54:33	162 171 49 54
73	38	USA-AK	ISLANDS, COAST MOUNTAINS	56.0N 132.0W	56.1N 137.1W	20	LO	250	N N	890811 20:54:48	162 174 49 54
73	39	USA-AK	REVILLAGIGEDO ISLAND	55.5N 131.0W	55.8N 133.1W	5	LO	250	N N	890811 20:55:06	162 177 49 54
73	40	USA-AK	REVILLAGIGEDO ISLAND	55.0N 131.5W	55.7N 134.4W	40	LO	250	N N	890811 20:55:12	162 178 50 54
73	41	USA-AK	REVILLAGIGEDO ISLAND	55.0N 131.5W	55.6N 133.8W	50	LO	250	N N	890811 20:55:18	162 179 50 54
74	42	USA-AK	COAST MOUNTAINS, ISLANDS	56.0N 134.0W	56.5N 142.3W	30	LO	250	N N	890811 19:21:15	161 135 42 53

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
74	89	USA-AK	COAST MOUNTAINS, ISLANDS	57.5N 133.5W	56.8N 141.4W	30 LO	250 N N 890811	19:21:23	161 136 42 53
74	100	USA-AK	COAST MOUNTAINS, ISLANDS	57.8N 133.8W	56.6N 140.9W	20 LO	250 N N 890811	19:21:27	161 137 42 53
74	101	USA-AK	COAST MOUNTAINS, ISLANDS	56.5N 132.5W	56.6N 140.6W	30 LO	250 N N 890811	19:21:30	161 137 42 53
76	22	USA-AK	ALEUTIAN ISLANDS, CLOUDS		53.9N 178.2W	90	250 N N 890808	21:54:53	161 134 45 7
76	23	USA-AK	ALEUTIAN ISLANDS, CLOUDS		54.3N 164.7W	90 LO	250 N N 890808	21:54:51	161 133 47 7
76	24	USA-AK	ALEUTIAN ISLANDS, CLOUDS		56.6N 164.2W	90	250 N N 890808	21:57:13	162 136 48 7
76	28	USA-AK	COPPER RIVER	60.5N 145.0W	57.1N 154.0W	60 LO	250 N N 890808	21:58:41	162 172 49 7
76	29	USA-AK	COPPER RIVER	60.5N 145.0W	57.1N 153.1W	60 LO	250 N N 890808	21:58:49	162 173 49 7
76	30	USA-AK	BERING GLACIER	60.0N 143.5W	57.1N 151.3W	40 LO	250 N N 890808	21:59:04	162 176 49 7
76	31	USA-AK	MALASPINA GLACIER	60.0N 140.5W	57.1N 150.1W	60 LO	250 N N 890808	21:59:16	162 177 49 7
76	32	USA-AK	MALASPINA GLACIER	60.0N 140.5W	57.1N 149.1W	60 LO	250 N N 890808	21:59:23	162 179 49 7
76	33	USA-AK	MALASPINA GLACIER	60.0N 140.5W	57.1N 147.9W	60 LO	250 N N 890808	21:59:33	162 181 49 7
76	34	USA-AK	BERING GLACIER	60.0N 143.8W	57.0N 146.5W	30 LO	250 N N 890808	21:59:45	162 183 49 7
82	40	USA-AK	BARANOF ISLAND	56.5N 135.0W		5 LO	250 N N		
82	41	USA-AK	KURU ISLAND	56.0N 134.0W	55.9N 131.3W	20 LO	250 N N 890809	19:03:50	161 142 45 21
82	42	USA-AK	PRINCE OF WALES ISLAND	56.0N 133.5W	56.0N 130.4W	60 LO	250 N N 890809	19:03:58	161 143 45 21
82	43	USA-AK	STEPHENS PASSAGE	58.0N 134.0W	56.3N 128.7W	20 LO	250 N N 890809	19:04:14	161 146 46 21
82	100	USA-AK	BRADY GLACIER	58.0N 136.0W	54.7N 134.7W	40 LO	100 N N 890809	22:10:51	162 202 50 23
82	101	USA-AK	BARANOF ISLAND	57.5N 135.0W	54.6N 134.4W	30 LO	100 N N 890809	22:10:54	162 202 50 23
82	102	USA-AK	BARANOF ISLAND	57.0N 134.0W	53.9N 133.5W	40 LO	100 N N 890809	22:11:23	162 207 49 23
83	32	USA-AK	COAST MOUNTAINS, ISLANDS	56.0N 131.5W	56.9N 137.8W	40 LO	100 N N 890811	19:21:59	161 141 43 53
83	33	USA-AK	REVILLAGIGEDO ISLAND	55.5N 132.0W	57.0N 135.7W	40 LO	100 N N 890811	19:22:17	161 143 44 53
83	34	USA-AK	REVILLAGIGEDO ISLAND	55.5N 132.0W	57.1N 133.2W	50 NV	100 N N 890811	19:22:39	161 147 44 53
83	55	USA-AK	ALEUTIAN ISLANDS	52.5N 178.5E	53.2N 178.1E	30 NV	100 U N 890811	20:49:13	161 114 35 54
83	57	USA-AK	BARANOF ISLAND	57.0N 135.0W	53.9N 135.5W	20 NV	100 N N 890811	20:56:29	162 176 49 54
84	47	USA-AK	ALEUTIAN ISLANDS, ATKA	52.0N 173.0W	51.8N 171.0W	90 LO	100 N N 890812	19:26:03	160 104 30 69
84	48	USA-AK	ALEUTIAN ISLANDS	52.5N 170.0W	52.0N 170.4W	80 NV	100 N N 890812	19:26:09	160 105 30 69
84	49	USA-AK	ALEUTIAN ISLANDS, UMNAX	53.0N 168.5W	52.6N 168.7W	70 NV	100 N N 890812	19:26:28	160 107 31 69
84	50	USA-AK	ALEUTIAN ISLANDS	52.6N 173.0W	54.0N 163.7W	90 HO	100 N N 890812	19:27:20	160 112 33 69
84	51	USA-AK	SHELKOF STRAIT	58.5N 154.5W	55.7N 155.3W	60 LO	100 N N 890812	19:28:48	161 122 37 69
84	52	USA-AK	CHUGACH MOUNTAINS	56.6N 147.0W	56.8N 145.9W	70 LO	100 N N 890812	19:30:04	161 134 41 69
84	71	USA-AK	ALEUTIAN RANGE	58.5N 155.0W	57.1N 162.6W	90 LO	100 N N 890812	21:01:28	161 141 43 70
84	72	USA-AK	GULF OF ALASKA	61.0N 146.0W	57.1N 160.7W	80 HO	100 N N 890812	21:01:44	161 144 43 70
84	73	USA-AK	ALEUTIAN RANGE	58.5N 155.0W	57.1N 159.1W	30 LO	100 N N 890812	21:01:58	161 146 44 70
84	74	USA-AK	KODIAK ISLAND	57.5N 133.5W	57.1N 134.5W	70 LO	100 N N 890812	21:02:03	161 147 44 70
84	75	USA-AK	CLOUDS		56.1N 145.0W	90 HO	100 N N 890812	21:04:00	161 165 48 70
84	76	USA-AK	CLOUDS		56.0N 143.9W	80 HO	100 N N 890812	21:04:10	161 167 48 70
84	77	USA-AK	CLOUDS		55.6N 141.8W	80 LO	100 N N 890812	21:04:29	161 170 49 70
88	18	USA-AK	GULF OF ALASKA, CLOUDS	60.0N 142.5W	57.1N 167.3W	80 HO	250 N N 890810	22:16:04	161 158 47 39
88	19	USA-AK	MALASPINA GLACIER	61.0N 140.5W	56.8N 159.3W	50 HO	250 N N 890810	22:17:12	162 171 48 39
88	29	USA-AK	ST. ELIAS MOUNTAINS	59.6N 137.0W	56.8N 159.0W	80 HO	250 N N 890810	22:17:15	162 171 48 39
89	81	USA-AK	GULF OF ALASKA, CLOUDS		54.3N 147.0W	90	100 N N 890810	19:11:06	161 125 40 37
89	82	USA-AK	MALASPINA GLACIER	60.0N 141.0W	56.2N 137.1W	50 HO	100 N N 890810	19:12:39	161 138 43 37
89	83	USA-AK	MALASPINA GLACIER	61.0N 141.0W	56.3N 136.0W	30 HO	100 N N 890810	19:12:49	161 140 44 37
89	98	USA-AK	BRADY GLACIER	58.0N 136.5W	56.8N 135.7W	20 NV	100 N N 890810	20:46:41	162 172 49 38
90	12	USA-AK	ALEUTIAN RANGE	58.0N 155.0W	57.1N 158.8W	40 LO	250 N N 890812	21:02:04	161 146 44 70
90	13	USA-AK	ALEUTIAN RANGE	58.5N 155.0W	57.1N 158.4W	20 LO	250 N N 890812	21:02:08	161 147 44 70
90	14	USA-AK	ALEUTIAN RANGE	58.5N 155.5W	57.1N 157.6W	20 LO	250 N N 890812	21:02:13	161 148 44 70
90	15	USA-AK	ALEUTIAN RANGE	59.0N 153.5W	57.6N 154.0W	40 LO	250 N N 890812	21:02:45	161 152 45 70
90	16	USA-AK	ALEUTIAN RANGE	58.0N 155.0W	56.9N 153.2W	30 LO	250 N N 890812	21:02:52	161 154 46 70
97	36	USA-AK	ST.ELIAS MTHS.GLACIERS	59.5N 139.0W	53.3N 127.8W	30 HO	250 N N 890810	17:39:45	161 120 39 36
97	37	USA-AK	ST.ELIAS MTHS.GLACIERS	60.0N 140.0W	53.6N 126.8W	30 HO	250 N N 890810	17:39:55	161 122 39 36
97	38	USA-AK	WRANGELL/ST.ELIAS MTHS.	61.0N 139.0W	53.7N 126.4W	10 HO	250 N N 890810	17:40:00	161 122 39 36
97	39	USA-AK	WRANGELL/ST.ELIAS MTHS.	60.5N 139.0W	54.4N 123.9W	20 HO	250 N N 890810	17:40:25	161 126 40 36
97	58	USA-AK	MALASPINA/YAKTSE GLS.CST	59.5N 141.0W	55.5N 141.1W	50 LO	250 N N 890810	19:11:51	161 133 42 37
97	59	USA-AK	KRUZOF I. PERIL STR.	57.0N 136.0W	55.8N 139.4W	10 LO	250 N Y 890810	19:12:07	161 135 43 37
97	60	USA-AK	CHICHAGOF I. PERIL STR.	57.5N 136.0W	55.9N 139.1W	5 LO	250 N Y 890810	19:12:10	161 135 43 37
97	61	USA-AK	CHICHAGOF I. YAKOB I.	58.0N 136.0W	55.9N 138.9W	5 LO	250 N Y 890810	19:12:12	161 136 43 37
97	62	USA-AK	BRADY GLACIER, GL. BAY	58.5N 137.0W	56.0N 138.3W	5 LO	250 N Y 890810	19:12:17	161 136 43 37
97	63	USA-AK	GLACIER BAY, LYNN CANAL	59.0N 136.0W	56.1N 137.8W	0 LO	250 N Y 890810	19:12:22	161 137 43 37
97	64	USA-AK	GLACIER BAY, CHIKAT RA.	59.0N 136.0W	56.2N 136.8W	0 LO	250 N Y 890810	19:12:31	161 139 43 37
97	65	USA-AK	CHICHAGOF I. ICY STR.	58.0N 136.0W	56.3N 136.3W	0 LO	250 N N 890810	19:12:35	161 139 44 37
97	66	USA-AK	CHATHAM STR. SITKA	57.5N 135.0W	56.3N 136.0W	5 LO	250 N N 890810	19:12:38	161 140 44 37
97	67	USA-AK	KUIU I. CHATHAM STR.	56.5N 134.0W	56.4N 135.4W	30 LO	250 N N 890810	19:12:43	161 140 44 37
97	68	USA-AK	PETERSBURG, BAIRD GL.	57.0N 133.0W	56.4N 134.7W	15 LO	250 N N 890810	19:12:49	161 141 44 37
97	69	USA-AK	CORONATION I. AFFLECK CA	56.0N 134.0W	56.5N 133.9W	30 LO	250 N Y 890810	19:12:56	161 142 44 37
97	70	USA-AK	CORONATION I. SUMNER STR	56.0N 134.0W	56.6N 133.4W	40 LO	250 N Y 890810	19:13:01	161 143 44 37
97	71	USA-AK	PETERSBURG, MITKOF I.	56.5N 133.0W	56.7N 132.6W	70 LO	250 N N 890810	19:13:08	161 144 45 37
97	72	USA-AK	BAIRD GL. N.BAIRD GL.	57.0N 132.5W	56.7N 131.9W	20 LO	250 N Y 890810	19:13:14	161 145 45 37
97	73	USA-AK	BAIRD GLS. DAWES GL.	57.5N 133.0W	56.8N 131.4W	30 LO	250 N Y 890810	19:13:18	161 146 45 37

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
97	74	USA-AK	BAIRD GLS. DAWES GL.	57.5N 133.8W	56.8N 131.8W	29 LO	250 N Y	890810	18:13:22	161 144 45 37
97	75	USA-AK	BAIRD GLS. DAWES GL.	57.8N 132.5W	56.8N 130.7W	30 LO	250 N Y	890810	18:13:24	161 147 45 37
97	76	USA-AK	BAIRD GLS. DAWES GL.	57.8N 132.5W	56.8N 130.4W	30 LO	250 N Y	890810	18:13:27	161 147 45 37
97	77	USA-AK	BAIRD GLS. DAWES GL.	57.5N 132.5W	56.9N 130.8W	40 LO	250 N Y	890810	18:13:30	161 148 45 37
97	81	USA-AK	MALASPINA GL.YAKUTAT BAY	60.0N 140.0W	57.1N 143.3W	25 LO	250 N Y	890810	20:45:25	161 161 47 38
97	82	USA-AK	MALASPINA GL.GASSIZ GL.	60.0N 141.0W	57.1N 142.7W	20 LO	250 N Y	890810	20:45:30	161 162 47 38
97	83	USA-AK	YAKUTAT BAY.RUSSELL FJO.	59.5N 139.5W	57.1N 141.7W	20 LO	250 N Y	890810	20:45:38	161 163 48 38
97	84	USA-AK	HARLEQUIN LST.ELIAS MTN	59.5N 139.8W	57.1N 141.8W	20 LO	250 N Y	890810	20:45:44	161 164 48 38
97	85	USA-AK	ALSEK R. STELIAS MTNS.	59.0N 138.5W	57.0N 140.8W	20 LO	250 N Y	890810	20:45:53	161 164 48 38
97	86	USA-AK	BRADY GL. MT.CRILLON	58.5N 137.0W	57.8N 134.7W	0 LO	250 N N	890810	20:46:04	162 164 48 38
97	87	USA-AK	GLACIER BAY. MUIR GL.	59.0N 136.0W	56.8N 137.5W	0 LO	250 N N	890810	20:46:14	162 169 48 38
98	9	USA-AK	BRISTOL BAY. CLD BREAKS		57.1N 159.5W	100 LO	250 N N	890809	22:07:30	162 167 48 23
98	10	USA-AK	BRISTOL BAY. CLD BREAKS		57.1N 159.2W	100 LO	250 N N	890809	22:07:33	162 168 48 23
98	11	USA-AK	G. ALASKA. CLD BREAKS		56.7N 150.2W	95 LO	250 N N	890809	22:08:50	162 181 49 23
98	12	USA-AK	MALASPINA GL.YAKUTAT BAY	60.0N 140.5W	55.8N 142.9W	40 LO	250 N Y	890809	22:09:55	162 192 50 23
98	13	USA-AK	MALASPINA GL.YAKUTAT BAY	59.5N 140.0W	55.4N 140.3W	40 LO	250 N Y	890809	22:10:19	162 194 50 23
100	70	USA-AK	ALASKA PEN. ALEUTIAN RA.	58.5N 155.0W	56.1N 153.1W	80 LO	250 N N	890812	19:28:52	161 125 38 69
151	234	USA-AK	INLAND PASSAGE.RIVER EFF	58.5N 135.0W		70 HO	90 N Y			
151	235	USA-AK	INLAND PASSAGE.RIVER EFF	58.8N 134.0W		70 HO	90 N Y			
151	236	USA-AK	CLOUDS			80 HO	90 N N			
151	237	USA-AK	BARANOF I. ADMIRALTY I.	54.5N 132.0W		70 HO	90 N N			
152	161	USA-AK	BARANOF I. CHATHAM STR.	54.5N 135.5W	54.5N 132.7W	30 LO	250 N N	890810	20:46:58	162 177 49 38
153	27	USA-AK	ALASKA PEN. PANORAMA	54.5N 163.5W	56.9N 159.8W	90 HO	90 N N	890811	20:52:48	161 142 43 54
153	28	USA-AK	BARANOF I. CHATHAM STR.	55.5N 132.5W	54.5N 140.8W	60 HO	90 N N	890811	20:55:32	161 168 48 54
153	35	USA-AK	ANDREANOF IS.CLOUD WAKES	52.0N 171.8W		85 LO	90 N Y			
153	36	USA-AK	ANDREANOF IS.CLOUD WAKES	52.0N 171.5W		85 LO	90 N Y			
153	37	USA-AK	ANDREANOF IS.CLOUD WAKES	52.0N 169.5W		85 LO	90 N N			
153	38	USA-AK	COPPER R. WRANGELL MTNS	61.0N 141.8W		85 HO	90 N N			
153	39	USA-AK	COPPER R. WRANGELL MTNS	60.5N 141.0W		85 HO	90 N N			
153	90	USA-AK	KENAI MTNS. COAST	59.5N 149.6W		90 LO	90 N N			
153	91	USA-AK	CHUGACH MTNS. COAST	59.5N 147.8W		90 LO	90 N N			
153	92	USA-AK	CHUGACH MTNS. COPPER R.	59.5N 146.6W		90 LO	90 N N			
153	94	USA-AK	MALASPINA GL.YAKUTAT BAY	59.5N 148.5W		30 LO	90 N N			
153	107	USA-AK	COPPER R. PANORAMA	62.5N 146.8W		50 HO	90 N Y			
153	108	USA-AK	COPPER R. PANORAMA	61.5N 146.5W		50 HO	90 N Y			
76	65	USA-AL	MOBILE	30.5N 88.0W	31.6N 89.2W	50 LO	250 N N	890808	22:11:51	164 278 32 7
77	100	USA-AL	MOBILE	30.5N 88.0W	30.5N 86.6W	5 NV	250 N N	890809	12:50:52	161 83 20 17
83	66	USA-AL	MOBILE BAY	30.5N 88.0W	31.2N 89.0W	70 NV	100 N N	890811	21:04:45	164 268 45 54
83	67	USA-AL	MOBILE BAY	30.5N 88.0W	31.8N 88.9W	80 NV	100 N N	890811	21:06:48	164 261 45 54
83	68	USA-AL	MOBILE BAY	30.5N 88.0W	30.8N 88.7W	80 NV	100 N N	890811	21:06:52	164 261 45 54
94	28	USA-AL	COOSA R. FOG. HAZE	33.5N 86.0W	32.1N 85.3W	20 LO	250 N N	890812	11:46:01	160 77 8 64
96	81	USA-AZ	CHENLE WASH.DEFIANCE PLA	34.0N 109.5W	34.9N 111.2W	40 LO	250 N N	890810	14:31:56	161 86 21 34
74	68	USA-CA	SANTA YNEZ MOUNTAINS	34.5N 119.5W	35.7N 120.2W	60 NV	250 N N	890811	14:39:55	161 82 16 50
74	69	USA-CA	LOS ANGELES	34.0N 118.0W	35.9N 120.0W	40 LO	250 N N	890811	14:39:59	161 82 16 50
82	2	USA-CA	SACRAMENTO VALLEY	39.5N 122.5W	37.0N 124.4W	5 LO	250 N N	890809	15:54:12	161 89 26 19
82	3	USA-CA	SACRAMENTO VALLEY	40.0N 122.0W	37.4N 125.9W	40 LO	250 N N	890809	15:54:21	161 90 26 19
87	12	USA-CA	OREGON&CALIFORNIA COAST	41.5N 122.5W	47.1N 123.8W	30 HO	100 N N	890810	22:23:14	163 229 49 39
88	27	USA-CA	CALIFORNIA	39.0N 121.5W	47.6N 124.9W	40 HO	250 N N	890810	22:23:08	163 227 50 39
88	29	USA-CA	SACRAMENTO VALLEY	39.0N 122.0W	45.4N 120.9W	20 LO	250 N N	890810	22:24:03	163 234 49 39
88	30	USA-CA	SACRAMENTO VALLEY	39.0N 121.5W	44.9N 120.2W	20 LO	250 N N	890810	22:24:14	163 234 49 39
89	26	USA-CA	CLOUDS ALONG COASTLINE	37.5N 122.0W	40.3N 130.3W	70 HO	100 N N	890810	16:03:47	161 90 25 35
89	27	USA-CA	SACRAMENTO VALLEY	42.0N 122.0W	42.0N 122.1W	60 HO	100 N N	890810	16:04:24	161 92 26 35
89	28	USA-CA	MOUNT SHASTA	41.5N 122.0W	43.7N 125.7W	60 LO	100 N N	890810	16:05:02	161 95 28 35
89	29	USA-CA	MOUNT SHASTA	41.5N 122.0W	44.0N 125.2W	40 LO	100 N N	890810	16:05:18	161 96 28 35
99	81	USA-CA	MOJAVE DES.IMP. VAL.	35.0N 118.0W	37.6N 118.2W	60 HO	50 N N	890811	14:40:31	161 84 17 50
100	50	USA-CA	YUBA CITY.FEATHER R. AGR	39.0N 121.5W	40.5N 122.5W	0 LO	250 N Y	890812	14:49:43	160 84 16 66
100	51	USA-CA	YUBA CITY.FEATHER R. AGR	39.0N 121.5W	40.8N 122.1W	0 LO	250 N Y	890812	14:49:49	160 84 16 66
100	52	USA-CA	SACRAMENTO/R/VALLEY.AGR	38.0N 121.5W	41.1N 121.7W	25 LO	250 N Y	890812	14:49:57	160 85 17 66
100	53	USA-CA	SACRAMENTO/R/VALLEY.AGR	38.5N 121.5W	41.3N 121.5W	15 LO	250 N Y	890812	14:50:00	160 85 17 66
153	1	USA-CA	PANORAMA-CENTRAL CALIF.	37.0N 118.5W	41.0N 114.2W	50 HO	90 N N	890811	14:42:00	161 84 21 50
153	2	USA-CA	PANORAMA-CENTRAL CALIF.	38.5N 120.0W	41.2N 113.9W	50 HO	90 N N	890811	14:42:05	161 88 21 50
78	32	USA-CO	SANGRE DE CRISTO MTNS.	38.0N 105.5W	34.5N 106.0W	30 LO	250 N N	890809	14:22:42	161 87 24 18
78	33	USA-CO	SANGRE DE CRISTO MTNS.	37.5N 105.5W	34.6N 105.8W	10 LO	250 N N	890809	14:22:45	161 87 24 18
78	34	USA-CO	SANGRE DE CRISTO MTNS.	37.0N 105.5W	34.7N 105.7W	20 LO	250 N N	890809	14:22:47	161 87 24 18
78	35	USA-CO	RIO GRANDE. AGRICULTURE	38.0N 106.5W	35.9N 104.5W	30 LO	250 N N	890809	14:23:11	161 88 25 18
90	21	USA-CO	AGRICULTURE. CLOUDS		40.9N 106.9W	80	250 N N	890812	21:11:38	163 234 53 70
90	22	USA-CO	COLORADO RIVER	39.0N 108.5W	40.6N 106.5W	60 LO	250 N N	890812	21:11:44	163 234 53 70
90	23	USA-CO	AGRICULTURE. ARKANSAS R.	38.0N 104.0W	37.5N 102.9W	60 NV	250 N N	890812	21:12:50	163 242 52 70
90	24	USA-CO	AGRICULTURE. ARKANSAS R.	38.0N 103.5W	37.3N 102.6W	70 NV	250 N N	890812	21:12:54	163 243 52 70
93	81	USA-CO	SAN JUAN MTNS.	38.0N 107.0W	39.3N 108.5W	40 LO	250 N N	890810	14:32:55	161 89 24 34

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT-LON	NADIR LAT-LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
93	82	USA-CO	SANGRE DE CRISTO MTNS.	37.5N 105.5W	39.5N 106.3W	20	LO	250	N	N	890810	14:32:59	161	89	24	34
93	83	USA-CO	SANGRE DE CRISTO MTNS.	38.5N 105.5W	39.4N 106.2W	15	LO	250	N	N	890810	14:33:02	161	89	24	34
93	84	USA-CO	COLORADO SPRINGS, PUEBLO	38.8N 105.8W	39.9N 107.8W	48	LO	250	N	Y	890810	14:33:09	161	90	24	34
93	85	USA-CO	COLORADO SPRINGS	38.8N 105.8W	40.0N 107.6W	35	LO	250	N	Y	890810	14:33:11	161	90	25	34
93	86	USA-CO	DENVER, FRONT RANGE	39.5N 105.8W	40.1N 107.5W	15	LO	250	N	Y	890810	14:33:13	161	90	25	34
93	87	USA-CO	DENVER, FRONT RANGE	39.5N 105.8W	40.3N 107.4W	5	LO	250	N	Y	890810	14:33:16	161	90	25	34
93	88	USA-CO	DENVER, BOULDER/LONGMONT	40.0N 105.8W	40.4N 107.2W	5	LO	250	N	Y	890810	14:33:19	161	90	25	34
93	89	USA-CO	DENVER, BOULDER/LONGMONT	40.0N 105.5W	40.5N 107.0W	20	LO	250	N	Y	890810	14:33:22	161	91	25	34
93	90	USA-CO	FORT COLLINS, FRONT RGE.	40.5N 105.8W	41.0N 106.4W	0	LO	250	N	Y	890810	14:33:32	161	91	26	34
93	91	USA-CO	FORT COLLINS, AGR.	40.5N 105.8W	41.1N 106.3W	0	LO	250	N	Y	890810	14:33:34	161	91	26	34
93	92	USA-CO	GREELEY, SO. PLATTE R. AGR.	40.5N 104.5W	41.2N 106.1W	0	LO	250	N	Y	890810	14:33:37	161	92	26	34
93	93	USA-CO	SOUTH PLATTE R. AGR.	40.5N 104.8W	41.3N 106.0W	0	LO	250	N	Y	890810	14:33:39	161	92	26	34
93	94	USA-CO	SOUTH PLATTE R. AGR.	40.8N 104.8W	41.5N 105.8W	0	LO	250	N	Y	890810	14:33:42	161	92	26	34
94	58	USA-CO	COLORADO R/PLAT. GREEN R.	39.0N 109.0W	41.0N 107.0W	50	HO	250	N	N	890812	21:11:53	163	233	53	70
94	59	USA-CO	ARKANSAS R/BASIN, AGR.	38.8N 103.0W	38.7N 104.3W	70	LO	250	N	N	890812	21:12:22	163	239	53	70
95	8	USA-CO	ARKANSAS R. AGR. PLAINS	38.5N 103.8W	39.1N 104.6W	35	LO	100	N	N	890809	22:17:53	163	255	42	23
95	9	USA-CO	ARKANSAS R. AGR. PLAINS	38.5N 103.8W	39.0N 104.4W	35	LO	100	N	N	890809	22:17:56	163	255	42	23
95	10	USA-CO	ARKANSAS R. AGR. PLAINS	38.8N 103.8W	38.8N 104.2W	35	LO	100	N	N	890809	22:18:00	163	256	41	23
99	28	USA-CO	FRONT RA. DENVER, PANOR.	39.5N 106.8W	38.8N 108.8W	48	HO	50	N	N	890810	14:32:37	161	89	23	34
99	29	USA-CO	FRONT RA. DENVER, PANOR.	40.8N 105.8W	39.4N 108.4W	48	HO	50	N	N	890810	14:32:46	161	89	24	34
99	30	USA-CO	DENVER, HI PLAINS, AGR.	40.8N 104.5W	40.8N 107.7W	30	HO	50	N	N	890810	14:32:58	161	90	24	34
100	46	USA-CO	NO. STERLING RES. AGR.	40.5N 103.5W	38.4N 102.1W	60	LO	250	N	N	890812	13:18:27	160	82	14	65
151	151	USA-CO	SAN LUIS VALLEY, ROCKIES	38.0N 106.8W	34.2N 104.2W	60	HO	90	N	N	890809	14:22:37	161	86	24	18
151	152	USA-CO	SAN LUIS VALLEY, ROCKIES	38.5N 106.8W	35.8N 103.4W	65	HO	90	N	N	890809	14:22:54	161	87	24	18
151	153	USA-CO	HIGH PLAINS, ARKANSAS R.	38.5N 103.8W		50	HO	90	N	N						
151	154	USA-CO	HIGH PLAINS, ARKANSAS R.	39.5N 102.5W	36.6N 103.8W	50	HO	90	N	N	890809	14:23:26	161	89	26	18
151	243	USA-CO	N/S PLATTE R. ARKANSAS R.	38.8N 102.8W		80	HO	90	N	N						
82	41	USA-CT	LONG ISLAND	41.0N 73.5W	34.4N 76.6W	30	LO	250	N	N	890809	20:48:52	163	263	58	22
78	3	USA-DC	WASHINGTON D.C.	38.8N 77.0W	39.6N 78.2W	0	NV	250	N	Y	890809	12:53:36	161	92	28	17
78	4	USA-DC	WASHINGTON D.C.	38.8N 77.0W	39.5N 77.5W	0	NV	250	N	Y	890809	12:53:47	161	93	29	17
79	84	USA-DE	DELAWARE BAY	39.5N 75.5W	39.5N 77.5W	10	LO	100	N	N	890809	12:53:48	161	93	29	17
73	61	USA-FL	KEY WEST	24.5N 81.5W	23.2N 82.8W	40	NV	250	N	N	890811	21:08:09	165	271	39	54
76	66	USA-FL	TAMPA BAY	27.5N 82.5W	27.4N 83.7W	30	LO	250	N	N	890808	22:13:12	164	274	28	7
99	82	USA-FL	FL PEN. KEYS, G. MEXICO	26.6N 82.5W	23.4N 82.9W	50	HO	50	N	N	890811	21:09:06	165	271	39	54
77	101	USA-GA	ATLANTA	33.5N 84.5W	32.6N 84.7W	20	NV	250	N	N	890809	12:51:33	161	85	22	17
88	9	USA-GA	GAINESVILLE	34.5N 84.0W	34.8N 83.9W	40	NV	250	N	N	890810	20:57:37	164	260	42	38
88	10	USA-GA	BLURRED		32.8N 82.8W			250	N	N	890810	20:58:00	164	262	41	38
94	29	USA-GA	TAYLOR RIDGE, LOOKOUT MT	34.5N 85.6W	32.5N 85.8W	10	LO	250	N	N	890812	11:46:08	160	77	8	64
99	54	USA-GA	BCLNC ZONE		32.4N 82.4W	90	HO	50	N	N	890810	20:57:55	164	262	41	38
99	55	USA-GA	BCLNC ZONE		31.8N 81.9W	95	HO	50	N	N	890810	20:58:06	164	263	41	38
99	56	USA-GA	BCLNC ZONE		31.2N 81.4W	95	HO	50	N	N	890810	20:58:17	164	264	40	38
71	12	USA-HI	HAWAII	19.5N 155.5W	19.2N 156.2W	70	NV	100	N	N	890808	17:10:33	161	78	14	4
72	36	USA-HI	HAWAII	19.5N 155.5W	16.4N 158.0W	80	LO	250	N	N	890808	17:09:25	161	77	12	4
72	37	USA-HI	OAHU	21.5N 158.0W	17.5N 157.4W	70	LO	250	N	N	890808	17:09:55	161	77	13	4
72	38	USA-HI	OAHU	21.5N 158.0W	18.3N 156.8W	70	LO	250	N	N	890808	17:10:10	161	77	14	4
72	39	USA-HI	OAHU	21.5N 157.5W	19.1N 156.3W	70	LO	250	N	N	890808	17:10:25	161	78	14	4
82	16	USA-HI	MAUI, MOLOKAI LANAI	21.0N 156.5W	18.3N 164.3W	50	LO	250	N	N	890809	17:19:02	161	76	9	20
82	17	USA-HI	OAHU, MOLOKAI LANAI	21.5N 158.0W	19.7N 163.7W	40	LO	250	N	N	890809	17:19:19	161	77	10	20
82	18	USA-HI	OAHU, MOLOKAI LANAI	21.5N 158.0W	20.7N 163.1W	50	LO	250	N	N	890809	17:19:37	161	77	10	20
82	19	USA-HI	OAHU, MOLOKAI LANAI	21.5N 158.0W	21.5N 162.5W	60	LO	250	N	N	890809	17:19:51	161	77	11	20
82	20	USA-HI	OAHU, MOLOKAI LANAI	21.5N 158.0W	23.5N 161.1W	30	LO	250	N	N	890809	17:20:28	161	78	13	20
82	21	USA-HI	OAHU, MOLOKAI LANAI	21.5N 158.0W	24.4N 160.5W	30	LO	250	N	N	890809	17:20:45	161	79	14	20
151	192	USA-HI	KUHAI, KAUAL OAHU	22.0N 160.0W	22.5N 161.8W	50	LO	90	N	N	890309	17:20:11	161	78	12	20
74	22	USA-IA	MISSISSIPPI RIVER	41.0N 91.0W	41.3N 90.8W	5	NV	250	N	N	890811	13:11:20	161	83	22	49
81	6	USA-IA	SIOUX CITY	42.5N 96.5W	41.8N 97.5W	0	NV	100	N	N	890809	14:25:31	161	86	31	18
88	1	USA-IA	FORT DODGE, EAGLE GROVE	42.5N 94.0W	42.7N 93.8W	70	NV	250	N	N	890810	20:54:34	163	242	47	38
89	105	USA-IA	MISSOURI RIVER, OMAHA	41.5N 95.5W	43.4N 94.9W	80	LO	100	N	N	890810	20:54:13	163	240	48	38
89	106	USA-IA	CLOUDS, AGRICULTURE	41.5N 92.5W		70		100	N	N						
151	156	USA-IA	GREAT PLAINS, OMAHA	42.5N 94.0W	40.4N 99.5W	25	HO	90	N	N	890809	14:24:45	161	84	29	18
153	0 P	USA-IA	MSR. RL/OAV. HAZE	42.0N 90.5W		15	LO	250	N	N						
73	43	USA-ID	PRIEST LAKE	48.5N 117.0W	50.5N 115.9W	10	LO	250	N	N	890811	20:58:24	162	208	52	54
82	7	USA-ID	SNAKE RIVER	44.5N 117.0W	42.5N 119.6W	30	LO	250	N	N	890809	15:56:11	161	97	31	19
92	8	USA-ID	SNAKE RIVER	45.0N 116.5W	43.1N 118.8W	80	LO	250	N	N	890809	15:56:24	161	98	32	19
82	9	USA-ID	SNAKE RIVER	45.5N 116.5W	43.4N 118.4W	80	LO	250	N	N	890809	15:56:31	161	99	32	19
82	10	USA-ID	SNAKE RIVER	46.0N 116.0W	43.8N 117.9W	70	LO	250	N	N	890809	15:56:39	161	99	32	19
89	33	USA-ID	SPOKANE, SNAKE RIVER	46.5N 116.5W	47.2N 119.8W	30	LO	100	N	N	890810	16:06:27	161	102	32	35
94	55	USA-ID	IDAHO FALLS, BEAR L.	43.5N 112.0W	44.5N 114.8W	85	LO	250	N	N	890812	21:09:33	162	217	54	70
95	4	USA-ID	IDAHO FALLS, SNAKE R.	43.0N 112.0W	44.3N 111.4W	70	LO	100	N	N	890809	22:16:00	163	244	45	23
98	22	USA-ID	SNAKE RIVER VALLEY, AGR.	44.5N 116.5W	47.4N 116.6W	30	LO	250	N	N	890809	22:14:41	163	235	47	23
153	6	USA-ID	BEAR LAKE, UT. SHOSHONE L.	44.0N 111.5W	45.1N 108.3W	70	HO	90	N	N	890811	16:43:34	161	98	26	50

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
153	76	USA-IO	AGR. SNAKE R. SPOKANE	48.0N 116.0W	44.4N 117.1W	35 HO	90 N H	890812	14:51:29	160 89 21 44
74	23	USA-IL	MISSISSIPPI RIVER	41.5N 90.5W	41.7N 90.3W	8 NV	250 N N	890811	13:11:28	161 89 22 48
74	24	USA-IL	CHICAGO	42.0N 88.0W	42.2N 89.5W	30 NV	250 N N	890811	13:11:41	161 90 23 48
87	1	USA-IL	ST. LOUIS, MISSOURI	39.0N 90.5W	40.0N 90.4W	60 NV	100 N Y	890810	20:55:24	163 249 46 38
87	2	USA-IL	ST. LOUIS, MISSOURI	39.0N 90.5W	39.7N 90.0W	60 NV	100 N Y	890810	20:55:31	163 249 46 38
87	3	USA-IL	CENTRALIA	38.5N 89.0W	39.0N 89.2W	80 NV	100 N H	890810	20:55:45	164 251 45 38
88	4	USA-IL	ST. LOUIS	38.5N 90.0W	38.9N 89.0W	30 NV	250 N Y	890810	20:55:56	164 251 45 38
100	82	USA-IL	CHICAGO, WAUKEGAN, KENOSHA	42.0N 88.0W	42.4N 85.9W	40 LO	250 N Y	890812	19:40:23	163 230 53 69
100	83	USA-IL	CHICAGO LAKE FRONT	42.0N 87.5W	42.3N 85.7W	40 LO	250 N Y	890812	19:40:25	163 230 53 69
152	168	USA-IL	MS. R. FREEPORT, AGR	42.0N 89.5W		40 LO	250 N H			
152	169	USA-IL	L. MI. ROCKFORD, AGR	42.5N 88.0W	41.7N 92.5W	50 LO	250 N H	890810	20:54:44	163 245 47 38
152	170	USA-IL	L. MI. ROCKFORD, AGR	42.5N 88.0W		40 LO	250 N H			
152	171	USA-IL	MS. R. ROCK R. AGR	42.0N 89.0W	41.1N 91.7W	50 LO	250 N H	890810	20:54:57	163 246 47 38
152	172	USA-IL	MS. R. ST. LOUIS, MO. R.	38.5N 89.5W		60 LO	250 N H			
153	0 J	USA-IL	CHICAGO, WAUKEGAN	42.5N 88.0W		20 LO	250 N H			
153	0 N	USA-IL	ILR. ROCKFORD, MS. R. HAZE	42.0N 89.5W		15 LO	250 N H			
153	87	USA-IL	L. MI. CHICAGO AREA	41.0N 88.0W		80 LO	90 N H			
82	73	USA-IN	FORT WAYNE	41.0N 85.0W	41.7N 84.8W	40 NV	250 N Y	890809	20:46:28	163 250 43 22
82	74	USA-IN	FORT WAYNE	41.0N 85.0W	41.5N 84.5W	20 NV	250 N Y	890809	20:46:24	163 251 43 22
82	75	USA-IN	FORT WAYNE	41.0N 85.5W	40.9N 83.8W	20 NV	250 N Y	890809	20:46:37	163 252 43 22
85	37	USA-IN	OHIO RIVER	38.0N 87.5W	37.0N 88.2W	5 NV	100 O H	890810	13:01:34	161 87 22 33
85	38	USA-IN	OHIO RIVER	38.0N 87.5W	37.0N 88.1W	5 NV	100 O H	890810	13:01:33	161 87 22 33
85	39	USA-IN	OHIO RIVER	38.0N 85.5W	38.1N 87.0W	5 NV	100 O H	890810	13:01:59	161 88 23 33
85	40	USA-IN	OHIO RIVER	39.0N 85.5W	38.2N 86.8W	5 NV	100 O H	890810	13:02:02	161 88 23 33
86	37	USA-IN	OHIO RIVER	38.0N 87.5W	37.0N 88.2W	5 NV	100 O H	890810	13:01:33	161 87 22 33
86	38	USA-IN	OHIO RIVER	38.0N 87.5W	37.1N 88.0W	5 NV	100 N H	890810	13:01:36	161 87 22 33
86	39	USA-IN	OHIO RIVER	39.0N 85.5W	38.1N 87.0W	5 NV	100 O H	890810	13:01:56	161 88 23 33
86	40	USA-IN	OHIO RIVER	39.0N 85.5W	38.3N 86.7W	5 NV	100 O H	890810	13:02:00	161 88 23 33
86	41	USA-IN	OHIO RIVER	39.0N 85.0W	38.7N 86.2W	5 NV	100 O H	890810	13:02:09	161 89 23 33
100	84	USA-IN	SO. CHICAGO, GARY, L. MI.	41.5N 87.5W	42.2N 85.6W	50 LO	250 N Y	890812	19:40:27	163 230 53 69
100	85	USA-IN	SO. CHICAGO, GARY, L. MI.	41.5N 87.5W	42.2N 85.6W	40 LO	250 N Y	890812	19:40:28	163 230 53 69
100	86	USA-IN	GARY, MICHIGAN CITY, L. MI.	41.5N 87.0W	42.1N 85.4W	40 LO	250 N Y	890812	19:40:30	163 231 53 69
100	87	USA-IN	FARM COUNTRY	41.5N 86.5W	42.0N 85.3W	40 LO	250 N Y	890812	19:40:32	163 231 53 69
100	88	USA-IN	FARM COUNTRY	41.0N 86.5W	41.0N 85.2W	50 LO	250 N Y	890812	19:40:34	163 231 53 69
100	90	USA-IN	MICHIGAN CITY, L. MI.	41.5N 86.5W	41.7N 84.9W	40 LO	250 N H	890812	19:40:39	163 232 53 69
100	91	USA-IN	FARM COUNTRY	41.0N 86.5W	41.5N 84.7W	40 LO	250 N H	890812	19:40:42	163 232 53 69
100	92	USA-IN	FARM COUNTRY, SALAMONIE R.	40.5N 85.5W	41.4N 84.6W	40 LO	250 N H	890812	19:40:44	163 233 53 69
151	228	USA-IN	L. MI. AGR. FORT WAYNE	41.5N 85.5W		70 LO	90 N Y			
151	229	USA-IN	L. MI. AGR. FORT WAYNE	41.0N 85.0W		70 LO	90 N Y			
152	173	USA-IN	FRANKFORT, AGR. L. MI.	41.0N 84.5W	40.0N 90.4W	60 LO	250 N H	890810	20:55:28	163 249 46 38
152	174	USA-IN	AGRICULTURE	40.5N 84.5W		60 LO	250 N H			
152	175	USA-IN	INDIANAPOLIS, AGR.	40.0N 85.5W	39.2N 89.5W	70 LO	250 N H	890810	20:55:36	164 250 46 38
152	176	USA-IN	INDIANAPOLIS, AGR.	39.5N 85.5W		60 LO	250 N H			
152	177	USA-IN	CINCINNATI, OHIO R. AGR	39.0N 85.5W	38.4N 88.5W	60 LO	250 N H	890810	20:55:54	164 252 45 38
153	96	USA-IN	L. MI. CHICAGO AREA	41.5N 87.0W		80 LO	90 N H			
153	98	USA-IN	L. MI. CHICAGO AREA	41.0N 86.0W		80 HO	90 N H			
153	99	USA-IN	L. MI. CHICAGO AREA	41.0N 86.0W		85 LO	90 N H			
73	57	USA-KS	SALINA	39.0N 97.5W	39.5N 97.5W	20 NV	250 N H	890811	21:02:50	163 244 49 54
73	58	USA-KS	WICHITA	37.5N 97.5W	38.1N 95.0W	30 NV	250 N H	890811	21:03:19	164 247 49 54
151	244	USA-KS	AGR. ARKANSAS R. H. PL	37.0N 101.0W		50 HO	90 N H			
153	0 F	USA-KS	MO. R. KS. R. KANSAS CTY	38.0N 85.5W		40 LO	250 N Y			
153	0 G	USA-KS	OTTAWA, KS. R. LAWRENCE	38.5N 95.5W		40 LO	250 N Y			
153	0 H	USA-KS	KANSAS CITY, MO. R. KS. R.	39.5N 95.5W		40 LO	250 N Y			
84	45	USA-KY	OHIO RIVER, CINCINNATI	39.0N 84.5W	40.0N 83.7W	80 LO	100 N H	890812	19:41:07	163 234 53 69
85	35	USA-KY	OHIO RIVER	37.0N 88.5W	36.3N 88.9W	5 NV	100 O H	890810	13:01:22	161 86 21 33
85	36	USA-KY	OHIO RIVER	37.0N 88.5W	36.4N 88.7W	5 NV	100 O H	890810	13:01:25	161 86 21 33
85	41	USA-KY	OHIO RIVER	39.0N 84.5W	38.7N 86.2W	5 NV	100 O H	890810	13:02:12	161 89 23 33
86	35	USA-KY	OHIO RIVER	37.0N 88.5W	36.3N 88.8W	5 NV	100 O H	890810	13:01:20	161 86 21 33
86	36	USA-KY	OHIO RIVER	37.0N 88.5W	36.5N 88.7W	5 NV	100 O H	890810	13:01:23	161 86 21 33
87	4	USA-KY	OHIO RIVER	37.0N 88.0W	38.0N 82.0W	70 NV	100 N Y	890810	20:56:06	164 253 45 38
87	5	USA-KY	OHIO RIVER	37.0N 88.0W	37.0N 87.0W	70 NV	100 N Y	890810	20:56:14	164 253 45 38
88	6	USA-KY	MADISONVILLE	37.5N 87.5W	36.7N 86.6W	20 NV	250 N H	890810	20:56:42	164 255 44 38
84	35	USA-KY	TUG FORK, GR. FOG	37.5N 82.5W	37.3N 80.3W	40 LO	250 N H	890812	11:47:44	160 81 13 64
152	104	USA-KY	OHIO R. KY. L. L. BARKLEY	36.5N 89.5W	38.1N 91.1W	30 LO	250 N H	890810	13:00:28	161 84 19 33
152	105	USA-KY	CENT. KY. OHIO R. HAZE	37.5N 87.0W	35.4N 89.8W	20 LO	250 N H	890810	13:00:54	161 85 20 33
152	106	USA-KY	CENT. KY. OHIO R. HAZE	37.5N 86.0W	36.3N 88.9W	20 LO	250 N H	890810	13:01:12	161 86 21 33
152	107	USA-KY	LEXINGTON, OHIO R.	38.0N 85.0W	37.2N 87.0W	10 LO	250 N H	890810	13:01:32	161 87 22 33
152	178	USA-KY	CINCINNATI, OHIO R. AGR	38.5N 85.0W	37.4N 87.4W	60 LO	250 N H	890810	20:56:14	164 254 46 38
152	179	USA-KY	LOUISVILLE, OHIO R. AGR	37.5N 85.5W		60 LO	250 N H			
153	102	USA-KY	OHIO R. CINCINNATI	38.5N 84.5W		80 HO	90 N H			

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E-S	DATE	GMT	SUN AL AZ EL OR
133	103	USA-KY	OHIO R. CINCINNATI	38.5N 85.0W		90 HO	90 N N			
71	102	USA-LA	MISSISSIPPI RIVER	31.0N 92.0W 32.0N	90.2W	50 NV	100 N Y	890808 22:11:31	164 260 33	7
73	60	USA-LA	MISSISSIPPI RIVER	30.0N 91.0W 32.7N	90.4W	70 LO	250 N N	890811 21:05:09	164 258 46	54
83	63	USA-LA	NEW ORLEANS	30.0N 90.0W 32.0N	89.8W	80 LO	100 N N	890811 21:04:29	164 259 45	54
83	64	USA-LA	NEW ORLEANS	30.0N 90.0W 31.9N	89.7W	70 NV	100 N N	890811 21:04:31	164 259 45	54
83	65	USA-LA	NEW ORLEANS	30.0N 90.0W 31.7N	89.5W	70 NV	100 N N	890811 21:04:34	164 259 45	54
95	13	USA-LA	MS. R. NEW ORLEANS. DARK	30.0N 90.0W 28.3N	94.1W	30 LO	100 U N	890809 22:21:29	164 271 34	23
95	14	USA-LA	MS. R. NEW ORLEANS. DARK	30.0N 90.0W 27.9N	93.9W	35 LO	100 U N	890809 22:21:36	164 271 33	23
152	100	USA-LA	MS DELTA AREA. MS. R. HAZE	29.5N 90.5W 31.7N	93.3W	70 LO	250 N N	890810 12:58:11	161 82 17	33
152	101	USA-LA	MS DELTA AREA. MS. R. HAZE	30.0N 90.0W 32.2N	92.8W	35 LO	250 N N	890810 12:58:51	161 82 17	33
76	11	USA-MA	CAPE COD. NANTUCKET IS.	41.5N 70.0W 37.0N	72.3W	30 LO	250 N N	890808 20:38:16	164 262 36	6
78	8	USA-MA	SPRINGFIELD	42.5N 72.5W 42.0N	73.5W	0 NV	250 N N	890809 12:54:55	161 98 32	17
99	43	USA-MA	CAPE COD. BOSTON HARBOR	42.0N 71.0W 44.5N	73.6W	50 HO	50 N N	890810 19:23:06	163 238 48	37
99	44	USA-MA	CAPE COD. BOSTON HARBOR	42.0N 70.0W 43.9N	72.6W	50 HO	50 N N	890810 19:23:21	163 240 48	37
99	45	USA-MA	CAPE COD. NANTUCKET I.	41.5N 70.0W 43.3N	71.7W	50 HO	50 N N	890810 19:23:34	163 241 47	37
151	133	USA-MA	NEW ENG. AREA. CONN. R.	42.5N 72.5W		15 NV	90 N Y			
151	134	USA-MA	NEW ENG. AREA. BOSTON	42.5N 72.0W 43.2N	72.8W	15 NV	90 N Y	890809 12:55:08	161 99 32	17
151	217	USA-MA	C.COD. INTERNAL WAVES	42.5N 69.5W 42.3N	62.6W	40 HO	90 N Y	890809 19:15:35	163 249 43	21
151	218	USA-MA	C.COD. R. EFFL. EDDY	42.5N 73.0W 41.5N	41.5W	50 HO	90 N Y	890809 19:15:53	163 251 43	21
151	219	USA-MA	C.COD. R. EFFL. EDDY	42.5N 73.0W		50 HO	90 N Y			
78	5	USA-MD	CHESAPEAKE BAY	39.5N 76.0W 40.1N	76.2W	0 NV	250 N N	890809 12:54:00	161 94 29	17
78	85	USA-MD	CHESAPEAKE BAY. BALTIMORE	38.5N 76.0W 39.5N	77.0W	5 LO	100 N N	890809 12:53:56	161 93 29	17
151	216	USA-ME	C.COD. INTERNAL WAVES	43.0N 70.5W		40 HO	90 N Y			
152	122	USA-ME	CHAUDIERE R. LONGF. MTS	46.0N 69.5W 48.1N	72.2W	5 LO	250 N Y	890810 13:05:39	161 105 33	33
72	24	USA-MI	LAKE HURON	44.0N 83.0W 44.6N	85.9W	20 LO	250 N N	890808 14:17:55	161 105 37	2
72	25	USA-MI	LAKE HURON	43.5N 83.0W 44.7N	85.7W	10 LO	250 N N	890808 14:17:58	161 104 38	2
73	6	USA-MI	LAKE SUPERIOR	47.5N 88.0W 49.8N	91.2W	20 LO	250 N N	890811 19:23:15	162 212 52	53
73	7	USA-MI	LAKE SUPERIOR	48.0N 88.5W 49.5N	90.6W	5 LO	250 N N	890811 19:23:21	162 213 52	53
73	8	USA-MI	LAKE HURON	46.0N 84.5W 48.0N	87.3W	30 LO	250 N N	890811 19:23:02	163 219 52	53
73	9	USA-MI	LAKE SUPERIOR	46.5N 85.0W 47.9N	87.0W	30 NV	250 N Y	890811 19:23:06	163 220 52	53
73	10	USA-MI	LAKE SUPERIOR	46.5N 86.0W 47.7N	86.8W	30 NV	250 N Y	890811 19:23:09	163 220 52	53
73	11	USA-MI	LAKE SUPERIOR	46.5N 86.3W 47.6N	86.5W	30 NV	250 N Y	890811 19:23:13	163 221 52	53
73	12	USA-MI	LAKE MICHIGAN	46.0N 84.0W 47.5N	86.3W	20 LO	250 N N	890811 19:23:16	163 221 52	53
73	13	USA-MI	STRAITS OF MACKINAC	46.0N 83.0W 47.3N	86.1W	10 NV	250 N Y	890811 19:23:19	163 222 52	53
73	14	USA-MI	STRAITS OF MACKINAC	46.0N 84.5W 47.2N	85.8W	30 NV	250 N Y	890811 19:23:22	163 222 52	53
73	15	USA-MI	LAKE HURON	46.0N 84.0W 47.1N	85.6W	10 NV	250 N N	890811 19:23:25	163 222 52	53
73	16	USA-MI	STRAITS OF MACKINAC	45.5N 84.5W 46.9N	85.3W	30 NV	250 N N	890811 19:23:30	163 223 52	53
73	17	USA-MI	LAKE MICHIGAN	46.0N 85.5W 46.5N	84.5W	10 NV	250 N Y	890811 19:23:41	163 225 52	53
73	18	USA-MI	LAKE SUPERIOR	46.5N 85.5W 46.3N	84.3W	20 NV	250 N Y	890811 19:23:44	163 225 52	53
73	19	USA-MI	SAGINAW BAY	43.5N 84.0W 45.3N	83.5W	30 LO	250 N Y	890811 19:23:55	163 227 51	53
73	20	USA-MI	SAGINAW BAY	43.5N 83.5W 45.7N	83.2W	50 LO	250 N N	890811 19:23:59	163 227 51	53
73	21	USA-MI	LAKE HURON	44.5N 83.5W 45.5N	82.9W	40 LO	250 N N	890811 19:30:04	163 228 51	53
73	24	USA-MI	LAKE HURON	43.0N 82.5W 44.8N	81.8W	50 NV	250 N N	890811 19:30:20	163 230 51	53
73	25	USA-MI	LAKE HURON. THUNDER BAY	45.0N 83.5W 44.2N	80.8W	20 NV	250 N N	890811 19:30:34	163 232 51	53
73	26	USA-MI	LAKE HURON. THUNDER BAY	44.5N 83.5W 42.6N	78.4W	50 LO	250 N N	890811 19:31:12	163 237 50	53
73	27	USA-MI	LAKE HURON	43.5N 82.5W 42.3N	78.0W	60 LO	250 N N	890811 19:31:18	163 237 50	53
73	28	USA-MI	LAKE HURON	43.0N 82.5W 42.2N	77.9W	70 LO	250 N N	890811 19:31:20	163 238 50	53
74	28	USA-MI	LAKE MICHIGAN	44.5N 86.0W 45.1N	85.3W	5 NV	250 N Y	890811 13:12:47	161 94 26	49
74	29	USA-MI	LAKE MICHIGAN	45.0N 85.5W 45.3N	85.0W	0 NV	250 N Y	890811 13:12:51	161 95 26	49
74	30	USA-MI	LAKE HURON. SAGINAW BAY	44.0N 83.0W 45.7N	84.3W	5 LO	250 N N	890811 13:13:01	161 95 27	49
74	31	USA-MI	LAKE HURON. THUNDER BAY	45.0N 83.5W 46.0N	83.8W	0 NV	250 N N	890811 13:13:08	161 96 27	49
74	32	USA-MI	LAKE HURON	45.5N 84.0W 46.1N	83.7W	0 NV	250 N Y	890811 13:13:10	161 96 27	49
74	33	USA-MI	STRAITS OF MACKINAC	45.5N 84.5W 46.2N	83.5W	0 NV	250 N Y	890811 13:13:12	161 96 27	49
74	34	USA-MI	STRAITS OF MACKINAC	46.0N 85.5W 46.4N	83.1W	5 LO	250 N N	890811 13:13:18	161 97 27	49
74	35	USA-MI	LAKE HURON. SAGINAW BAY	44.0N 83.0W 47.2N	81.7W	10 LO	250 N N	890811 13:13:38	161 98 28	49
76	6	USA-MI	DETROIT. LAKE ERIE	42.5N 83.5W 46.4N	84.2W	60 LO	250 N N	890808 20:36:03	163 245 43	6
78	39	USA-MI	KEWEENAW PENINSULA	47.0N 88.5W 46.7N	90.1W	10 NV	250 N Y	890809 14:27:09	161 105 35	18
78	40	USA-MI	KEWEENAW PENINSULA	47.0N 88.5W 47.0N	89.5W	10 NV	250 N Y	890809 14:27:17	161 104 36	18
78	41	USA-MI	LSUPERIOR. WHITEFISH BAY	46.5N 85.0W 47.3N	83.6W	50 LO	250 N N	890809 14:27:24	161 107 36	18
81	8	USA-MI	LAKE SUPERIOR	46.5N 90.0W 63.1N	95.8W	80 HO	100 N N	890806 14:25:58	161 98 32	18
81	13	USA-MI	GREAT LAKES. CLOUDS	46.5N 87.0W 45.9N	91.5W	30 LO	100 N N	890809 14:27:02	161 104 35	18
81	14	USA-MI	LAKE SUPERIOR	47.0N 88.0W 46.3N	90.9W	80 LO	100 N N	890809 14:27:11	161 104 35	18
81	79	USA-MI	LAKE MICHIGAN. L. HURON	45.5N 85.0W 45.0N	89.6W	80 LO	100 N N	890809 20:45:16	163 242 45	22
81	80	USA-MI	LAKE MICHIGAN. L. HURON	43.5N 84.5W 44.6N	88.9W	80 LO	100 N N	890809 20:45:27	163 244 45	22
81	81	USA-MI	LAKE HURON. CLOUDS	44.0N 84.5W 43.4N	87.1W	80 LO	100 N N	890809 20:45:35	163 247 44	22
82	63	USA-MI	LAKE SUPERIOR	47.0N 88.5W 45.8N	90.9W	30 LO	250 N N	890809 20:44:46	163 246 46	22
82	65	USA-MI	LAKE MICHIGAN	44.5N 86.0W 43.6N	87.4W	80 NV	250 N N	890809 20:45:37	163 246 44	22
82	66	USA-MI	LAKE MICHIGAN	45.5N 85.5W 43.2N	86.9W	70 LO	250 N N	890809 20:45:46	163 247 44	22
82	67	USA-MI	LAKE MICHIGAN	45.0N 85.5W 43.1N	86.7W	80 LO	250 N N	890809 20:45:48	163 247 44	22
82	68	USA-MI	LAKE MICHIGAN	43.0N 86.0W 42.7N	86.2W	60 NV	250 N Y	890809 20:45:57	163 248 44	22



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL OR
82	69	USA-MI	LAKE MICHIGAN	43.5N 86.0W 42.6N	86.1W	60	NV	250	N	Y	890809	20:45:58	163 248 44 22
82	70	USA-MI	LAKE MICHIGAN	43.5N 86.0W 42.5N	85.9W	60	NV	250	N	Y	890809	20:46:02	163 249 44 22
82	71	USA-MI	LAKE MICHIGAN	44.0N 86.0W 42.4N	85.7W	20	NV	250	N	Y	890809	20:46:04	163 249 44 22
82	72	USA-MI	LAKE MICHIGAN	43.0N 86.0W 42.0N	85.2W	80	NV	250	N	Y	890809	20:46:13	163 250 43 22
83	1	USA-MI	LAKE MICHIGAN	45.0N 85.5W 46.3N	83.3W	10	LO	100	U	N	890811	13:13:20	161 96 27 49
83	2	USA-MI	LAKE HURON	45.5N 84.0W 46.5N	83.0W	10	NV	100	U	N	890811	13:13:25	161 97 27 49
83	3	USA-MI	LAKE HURON	45.0N 83.5W 46.7N	82.7W	5	NV	100	U	N	890811	13:13:29	161 97 28 49
83	45	USA-MI	LAKE MICHIGAN	44.0N 86.5W 47.6N	86.5W	60	LO	100	N	N	890811	19:30:29	163 221 52 53
83	46	USA-MI	LAKE MICHIGAN	44.0N 86.5W 47.1N	85.6W	50	LO	100	N	N	890811	19:30:32	163 222 52 53
83	47	USA-MI	LAKE MICHIGAN	42.0N 86.5W 46.1N	83.8W	80	LO	100	N	N	890811	19:30:57	163 226 51 53
83	48	USA-MI	BAY CITY, SAGINAW	43.5N 83.5W 45.6N	83.0W	60	LO	100	N	N	890811	19:31:09	163 228 51 53
84	30	USA-MI	LAKE SUPERIOR	46.5N 87.5W 47.1N	89.5W	20	LO	100	N	N	890812	13:21:53	160 94 24 65
84	55	USA-MI	LOWER PENINSULA	44.5N 85.5W 45.0N	89.7W	50	LO	100	N	N	890812	19:39:52	163 222 54 69
84	56	USA-MI	LOWER PENINSULA	43.5N 85.0W 44.6N	89.1W	60	LO	100	N	N	890812	19:39:40	163 223 54 69
84	57	USA-MI	LAKE MICHIGAN, CHICAGO	42.0N 84.5W 43.2N	84.9W	50	NV	100	N	N	890812	19:40:14	163 227 54 69
84	58	USA-MI	LAKE MICHIGAN, CHICAGO	42.0N 86.5W 42.9N	84.5W	50	NV	100	N	Y	890812	19:40:20	163 228 54 69
84	59	USA-MI	LAKE MICHIGAN	42.5N 86.0W 42.8N	84.4W	40	NV	100	N	Y	890812	19:40:23	163 229 54 69
84	60	USA-MI	LAKE MICHIGAN	43.0N 86.0W 42.6N	84.1W	50	NV	100	N	Y	890812	19:40:27	163 229 54 69
84	61	USA-MI	LAKE HURON, SAGINAW BAY	43.5N 83.5W 42.3N	85.7W	50	LO	100	N	N	890812	19:40:34	163 230 53 69
84	62	USA-MI	DETROIT, LAKES HURON & ERIE	42.5N 83.0W 41.9N	85.5W	40	LO	100	N	N	890812	19:40:41	163 231 53 69
84	63	USA-MI	DETROIT, LAKE HURON	43.5N 83.0W 41.4N	84.6W	40	LO	100	N	N	890812	19:40:52	163 233 53 69
84	64	USA-MI	DETROIT, LAKE ERIE	42.0N 83.5W 41.2N	84.2W	50	NV	100	N	N	890812	19:40:58	163 233 53 69
87	106	USA-MI	PARTIAL FRAME, L. MICH.	43.0N 86.0W		10	NV	100	U	N			
96	88	USA-MI	L. SUPERIOR, KEWEENAW PEN.	47.5N 89.5W 48.4N	94.7W	30	LO	250	N	N	890810	14:34:17	161 185 33 34
96	89	USA-MI	L. SUPERIOR, APOSTLE IS.	46.5N 90.0W 49.4N	92.6W	20	LO	250	U	N	890810	14:34:43	161 187 34 34
96	90	USA-MI	L. SUPERIOR, KEWEENAW PEN.	47.5N 87.5W 49.7N	91.9W	30	LO	250	N	N	890810	14:36:52	161 198 35 34
96	92	USA-MI	L. MI, L. SUP. STR. MACKINAC	46.0N 85.5W 50.4N	96.3W	40	HO	250	N	N	890810	14:37:11	161 110 36 34
99	79	USA-MI	L. HURON, STR. MACKINAC	45.0N 82.5W 44.8N	85.7W	40	HO	50	U	N	890811	13:12:38	161 94 26 49
100	47	USA-MI	STR. MACKINAC, L. HURON	45.5N 84.5W 46.1N	91.4W	20	LO	250	N	N	890812	13:21:19	160 82 23 65
100	73	USA-MI	L. SUPERIOR, MARQUETTE	46.5N 87.5W 45.1N	89.8W	60	LO	250	N	N	890812	19:39:22	163 221 54 69
100	74	USA-MI	L. MI, TRAVERSE CITY	44.5N 86.0W 44.0N	89.1W	40	LO	250	N	Y	890812	19:39:47	163 225 54 69
100	75	USA-MI	L. MI, TRAVERSE CITY	45.0N 86.0W 43.9N	88.8W	40	LO	250	N	Y	890812	19:39:49	163 225 54 69
100	76	USA-MI	L. MI, TRAVERSE CITY	45.0N 85.5W 43.8N	87.8W	30	LO	250	N	Y	890812	19:39:52	163 226 54 69
100	77	USA-MI	L. MI, TRAVERSE CITY	45.0N 85.0W 43.7N	87.7W	40	LO	250	N	Y	890812	19:39:54	163 226 54 69
100	78	USA-MI	L. MI, TRAVERSE CITY	45.0N 85.5W 43.5N	87.4W	40	LO	250	N	Y	890812	19:39:59	163 227 54 69
100	79	USA-MI	CENT. AREA, MUSKEGON R.	43.5N 85.0W 42.9N	84.6W	50	LO	250	N	Y	890812	19:40:11	163 228 54 69
100	80	USA-MI	CENT. AREA, TITABAWASSEE R.	44.0N 85.0W 42.7N	84.2W	50	LO	250	N	Y	890812	19:40:17	163 229 54 69
100	81	USA-MI	SAG. BAY, TITABAWASSEE R.	44.0N 84.5W 42.6N	84.1W	50	LO	250	N	Y	890812	19:40:19	163 229 54 69
100	89	USA-MI	ST. JOSEPH, L. MI	42.0N 86.5W 41.8N	85.0W	40	LO	250	N	N	890812	19:40:37	163 232 53 69
151	150	USA-MI	L. SUPERIOR, KEWEENAW P.	48.0N 87.5W 44.9N	93.1W	50	HO	90	N	N	890809	14:26:27	161 182 34 18
151	160	USA-MI	L. SUPERIOR, L. MICH.	47.0N 85.5W 45.9N	91.5W	50	HO	90	N	N	890809	14:26:51	161 184 35 18
151	224	USA-MI	L. MI, DOOR PEN, NW COAST	44.0N 87.0W		85	LO	90	N	N			
151	225	USA-MI	L. MI, DOOR PEN, NW COAST	45.0N 86.8W		85	LO	90	N	N			
151	226	USA-MI	L. MI, SOUTH COASTS	43.0N 86.5W		80	LO	90	N	N			
151	227	USA-MI	L. MI, MID CST, GRAND RAPID	43.0N 85.5W		85	LO	90	N	N			
152	113	USA-MI	DETROIT, L. ST. CLAIR	42.5N 82.5W 43.4N	80.2W	30	LO	250	N	N	890810	13:03:45	161 95 28 33
152	166	USA-MI	L. MI, PANORAMA	45.0N 86.0W 42.8N	84.1W	50	HO	250	N	N	890810	20:54:17	163 242 47 38
153	0 L	USA-MI	L. MI, MUSKEGON, COAST	43.5N 87.0W		60	LO	250	N	N			
153	0 M	USA-MI	L. MI, MUSKEGON, BLURRED	43.0N 87.0W		30	LO	250	N	N			
153	0 Y	USA-MI	MENOMONEE R. GREEN BAY	45.5N 87.5W		25	LO	250	N	N			
153	0 Z	USA-MI	GREEN BAY, ESCANABA	46.0N 87.5W		20	LO	250	N	N			
153	0AA	USA-MI	GREEN BAY, L. SUPERIOR	46.5N 87.5W		25	LO	250	N	N			
153	0AB	USA-MI	SAULT STE. MARIE, L. MI	46.5N 85.0W		35	LO	250	N	N			
153	0AD	USA-MI	NE CST, L. SUPERIOR	46.0N 86.0W		40	LO	250	N	N			
153	0AE	USA-MI	STR. MACKINAC, BRIDGE	46.0N 85.0W		35	LO	250	N	N			
153	0AF	USA-MI	STR. MACKINAC, CHEBOYGAN	45.5N 84.5W		15	LO	250	N	N			
153	0AH	USA-MI	STR. MACKINAC, L. MI	46.0N 85.5W		40	LO	250	N	N			
153	0AJ	USA-MI	STR. MACKINAC, BEAVER L.	46.0N 85.5W		40	LO	250	N	N			
153	0AK	USA-MI	GRAND L. L. SUPERIOR	46.5N 86.5W		40	LO	250	N	N			
153	0AL	USA-MI	MARQUETTE, GRAND L.	46.5N 87.0W		40	LO	250	N	N			
153	0AM	USA-MI	MARQUETTE, GRAND L.	46.0N 87.0W		40	LO	250	N	N			
153	0AN	USA-MI	L. SUPERIOR, NE COAST	47.0N 85.5W		40	LO	250	N	N			
153	0AP	USA-MI	STR. MACKINAC, STE. MARIE	46.0N 85.0W		30	LO	250	N	N			
153	9	USA-MI	L. SUPERIOR, PANORAMA	45.5N 87.5W 54.0N	87.1W	80	HO	90	N	N	890811	14:47:48	161 119 37 50
153	23	USA-MI	STR. MACKINAC, BEAVER L.	46.5N 86.5W 45.5N	82.8W	70	HO	90	U	N	890811	19:31:22	163 228 51 53
153	24	USA-MI	STR. MACKINAC, SAGINAW BAY	45.0N 85.0W 44.7N	81.5W	60	HO	90	U	N	890811	19:31:41	163 230 51 53
153	25	USA-MI	ST. CLAIR R. SAGINAW BAY	44.5N 84.5W 43.8N	80.3W	70	HO	90	U	N	890811	19:32:00	163 233 51 53
153	26	USA-MI	ST. CLAIR R. SAGINAW BAY	44.0N 86.0W 42.6N	78.4W	80	HO	90	U	N	890811	19:32:29	163 237 50 53
153	74 W	USA-MI	GR. LAKES PANORAMA, HAZE	44.0N 84.5W		35	HO	90	N	N			
78	37	USA-MN	MINNEAPOLIS, ST. PAUL	45.0N 93.0W 44.1N	94.4W	0	NV	250	N	N	890809	14:26:07	161 100 33 18

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FLE S	DATE	GMT	AL	AZ	EL	SUM CR
81	7	USA-MN	LAKE SUPERIOR	48.8N 90.8W 42.6N 96.6W	88 HO	100 N	N	890809	14:25:45	161	97	31	18
81	9	USA-MN	MINNEAPOLIS, ST. PAUL	45.8N 93.0W 43.8N 94.8W	20 NV	100 N	N	890809	14:26:13	161	99	33	18
81	10	USA-MN	LAKE SUPERIOR	47.0N 92.0W 44.5N 93.7W	50 LO	100 N	N	890809	14:26:34	161	101	33	18
81	74	USA-MN	AGRICULTURE, LAKES	48.5N 95.8W 50.4N 100.8W	49 LO	100 N	N	890809	20:42:58	162	225	48	22
81	75	USA-MN	AGRICULTURE, LAKES	48.6N 95.0W 49.2N 97.3W	40 LO	100 N	N	890809	20:43:32	163	230	48	22
81	76	USA-MN	AGRICULTURE, LAKES	48.8N 94.5W 49.1N 97.0W	40 LO	100 N	N	890809	20:43:35	163	230	48	22
93	99	USA-MN	INTERNATIONAL FALLS	48.5N 93.5W 47.9N 95.7W	8 LO	250 N	Y	890810	14:34:13	161	104	33	34
93	101	USA-MN	LAKE AREA	48.8N 92.0W 48.2N 95.1W	35 LO	250 N	Y	890810	14:34:21	161	104	33	34
93	105	USA-MN	RAINY R. INT. FALLS	48.5N 94.0W 49.5N 92.4W	0 LO	250 N	N	890810	14:34:55	161	104	35	34
93	106	USA-MN	INT. FALLS, RAINY R/L	48.5N 93.5W 49.7N 92.8W	0 LO	250 N	N	890810	14:37:00	161	104	35	34
93	107	USA-MN	RAINY L. LAKE AREA	48.5N 93.0W 49.8N 91.7W	5 LO	250 N	N	890810	14:37:03	161	109	35	34
96	86	USA-MN	U/L RED L. LAKE REGION	47.5N 95.0W 46.6N 99.8W	29 LO	250 N	N	890810	14:35:18	161	170	31	34
96	87	USA-MN	INTERNATIONAL FALLS, AGR	48.5N 92.5W 47.3N 96.2W	20 LO	250 N	N	890810	14:35:49	161	182	32	34
151	157	USA-MN	GREAT PLAINS, ST. P/MIN.	45.8N 93.0W 42.8N 96.2W	40 HO	90 N	N	890809	14:25:40	161	98	32	18
151	221	USA-MN	AGR. RED LAKES, LOECH L.	47.5N 95.0W	40 LO	90 N	N						
74	20	USA-MO	MISSOURI RIVER	48.6N 95.0W 37.4N 95.4W	20 LO	250 N	N	890811	13:09:57	161	84	18	49
74	21	USA-MO	MISSOURI RIVER	39.5N 94.5W 37.9N 94.9W	50 LC	250 N	N	890811	13:10:07	161	84	18	49
85	33	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.7N 89.5W	5 NV	100 O	N	890810	13:01:10	161	85	21	33
85	34	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.8N 89.4W	5 NV	100 O	N	890810	13:01:13	161	85	21	33
86	33	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.7N 89.5W	5 NV	100 N	N	890810	13:01:06	161	85	21	33
86	34	USA-MO	MISSISSIPPI RIVER	36.5N 90.0W 35.9N 89.3W	5 NV	100 O	N	890810	13:01:11	161	85	21	33
88	2	USA-MO	OSKALOOSA	41.5N 92.5W 41.1N 91.7W	60 NV	250 N	N	890810	20:55:08	163	246	47	38
88	3	USA-MO	ST. LOUIS	38.5N 90.5W 39.5N 89.8W	20 NV	250 N	Y	890810	20:55:02	163	250	46	38
88	5	USA-MO	MISSISSIPPI RIVER	37.0N 89.5W 38.2N 88.2W	40 NV	250 N	N	890810	20:56:11	164	252	45	38
71	95	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.6N 92.8W	50 NV	190 H	Y	890808	22:10:54	164	266	34	7
71	96	USA-MS	MISSISSIPPI RIVER	33.5N 91.0W 34.5N 91.8W	50 NV	100 N	Y	890808	22:11:57	164	267	34	7
71	97	USA-MS	MISSISSIPPI RIVER	33.0N 91.0W 34.2N 91.6W	40 NV	100 N	Y	890808	22:11:02	164	267	34	7
71	98	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 33.7N 91.1W	50 NV	100 N	Y	890808	22:11:13	164	268	33	7
71	99	USA-MS	MISSISSIPPI RIVER	33.5N 91.0W 33.6N 91.0W	50 NV	100 N	Y	890808	22:11:15	164	268	33	7
71	100	USA-MS	MISSISSIPPI RIVER	32.5N 91.0W 33.4N 90.8W	40 NV	100 H	Y	890808	22:11:18	164	268	33	7
71	101	USA-MS	MISSISSIPPI RIVER	32.0N 91.0W 33.2N 90.6W	30 NV	100 N	Y	890808	22:11:22	164	268	33	7
76	63	USA-MS	MISSISSIPPI RIVER	34.5N 90.5W 35.9N 92.3W	20 LO	250 N	N	890808	22:10:26	164	245	35	7
76	64	USA-MS	JACKSON	32.0N 90.0W 34.3N 91.6W	5 LO	250 N	N	890808	22:10:59	164	267	34	7
85	29	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.6N 90.6W	20 NV	100 O	N	890810	13:05:38	161	84	19	33
85	30	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.3N 90.4W	20 NV	100 O	N	890810	13:05:52	161	84	20	33
86	29	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.6N 90.5W	20 NV	100 O	N	890810	13:06:46	161	84	19	33
86	30	USA-MS	MISSISSIPPI RIVER	34.0N 91.0W 34.3N 90.4W	20 NV	100 O	N	890810	13:06:49	161	84	20	33
152	102	USA-MS	MS R. MEMPHIS, HAZE	35.8N 90.5W 32.9N 92.2W	40 LO	250 N	Y	890810	13:00:04	161	83	18	33
152	103	USA-MS	MS R. MEMPHIS, HAZE	35.8N 89.0W 33.1N 92.0W	50 LO	250 N	Y	890810	13:00:09	161	83	18	33
71	1	USA-MT	FORT PECK LAKE	47.5N 106.5W 46.5N 105.7W	0 NV	100 U	N	890808	15:49:16	161	109	39	
71	2	USA-MT	FORT PECK LAKE	47.5N 106.5W 46.8N 105.3W	0 NV	100 U	N	890808	15:49:22	161	110	39	3
71	3	USA-MT	MISSOURI RIVER	48.0N 104.5W 48.7N 101.5W	5 NV	100 U	N	890808	15:50:11	161	115	41	3
71	84	USA-MT	MISSOURI RIVER	47.5N 106.8W 51.0N 116.9W	50 HO	100 N	N	890808	22:04:33	163	229	44	7
71	86	USA-MT	MISSOURI RIVER	42.0N 107.8W 49.8N 113.9W	30 HO	100 N	N	890808	22:05:09	163	234	45	7
71	87	USA-MT	FORT PECK LAKE	48.0N 106.5W 48.4N 110.8W	5 LO	100 N	N	890808	22:05:48	163	239	45	7
73	44	USA-MT	FLATHEAD LAKE	48.0N 114.8W 50.4N 115.6W	40 LO	250 N	N	890811	20:58:27	162	209	52	54
73	45	USA-MT	NORTH CENTRAL MONTANA	47.5N 111.0W 49.7N 113.9W	80 LO	250 N	N	890811	20:58:47	162	212	52	54
73	46	USA-MT	MISSOURI RIVER	47.5N 110.5W 49.4N 113.6W	30 LO	250 N	N	890811	20:58:51	162	213	52	54
73	47	USA-MT	MISSOURI RIVER	48.0N 109.0W 49.5N 113.6W	40 LO	250 N	N	890811	20:58:54	162	213	52	54
73	48	USA-MT	MISSOURI RIVER	47.5N 110.8W 49.4N 113.1W	40 LO	250 N	N	890811	20:58:57	162	213	52	54
73	46	USA-MT	JUDITH RIVER	47.0N 109.5W 49.3N 113.9W	50 LO	250 N	N	890811	20:59:00	162	214	52	54
73	50	USA-MT	MUSSELSHELL RIVER	46.5N 109.5W 49.1N 112.5W	50 LO	250 N	N	890811	20:59:05	162	215	52	54
73	51	USA-MT	MUSSELSHELL RIVER	46.5N 109.5W 48.7N 111.7W	50 LO	250 N	N	890811	20:59:15	163	216	52	54
73	52	USA-MT	SOUTH CENTRAL MONTANA	45.5N 109.0W 48.1N 110.8W	40 LO	250 N	N	890811	20:59:25	163	218	52	54
73	53	USA-MT	SOUTH CENTRAL MONTANA	46.0N 108.5W 48.2N 110.7W	40 LO	250 N	N	890811	20:59:28	163	218	52	54
73	54	USA-MT	SOUTH CENTRAL MONTANA	45.8N 108.5W 47.8N 109.8W	60 LO	250 N	N	890811	20:59:38	163	219	52	54
73	55	USA-MT	BILLINGS	45.5N 108.5W 46.7N 107.8W	30 NV	250 N	N	890811	21:00:07	163	224	52	54
74	71	USA-MT	ROCKY MOUNTAINS	48.0N 114.5W 43.8N 110.4W	5 LO	250 N	N	890811	16:42:47	161	92	24	50
74	90	USA-MT	NORTHWESTERN MONTANA	47.0N 111.5W 52.5N 115.2W	30 LO	250 N	N	890811	16:47:11	161	112	35	51
74	91	USA-MT	NORTHWESTERN MONTANA	47.9N 110.5W 52.6N 114.9W	40 LO	250 N	N	890811	16:47:14	161	112	35	51
74	92	USA-MT	NORTHWESTERN MONTANA	47.0N 111.0W 52.8N 114.5W	30 LO	250 N	N	890811	16:47:19	161	113	35	51
74	93	USA-MT	NORTHWESTERN MONTANA	46.5N 110.5W 53.0N 113.8W	30 LO	250 N	N	890811	16:47:26	161	114	35	51
74	94	USA-MT	NORTHWESTERN MONTANA	47.5N 112.0W 53.1N 113.4W	10 LO	250 N	N	890811	16:47:30	161	114	35	51
74	95	USA-MT	NORTHWESTERN MONTANA	47.0N 111.0W 53.2N 113.0W	30 LO	250 N	N	890811	16:47:34	161	115	36	51
74	96	USA-MT	AGRICULTURE, MISSOURI R.	47.5N 110.5W 53.3N 112.7W	30 LO	250 N	N	890811	16:47:37	161	115	36	51
76	49	USA-MT	ROCKY MOUNTAINS	48.5N 114.5W 50.3N 115.1W	40 LO	250 N	N	890808	22:04:52	163	232	46	7
76	50	USA-MT	ROCKY MOUNTAINS	48.0N 114.5W 50.2N 114.7W	30 LO	250 N	N	890808	22:04:57	163	232	46	7
76	51	USA-MT	ROCKY MOUNTAINS	48.0N 114.0W 49.8N 113.8W	30 LO	250 N	N	890808	22:05:08	163	234	45	7
76	52	USA-MT	AGRICULTURE	48.5N 113.0W 49.4N 112.9W	10 NV	250 N	N	890808	22:05:19	163	235	45	7
76	53	USA-MT	MISSOURI RIVER	48.0N 108.5W 48.3N 110.7W	5 LO	250 N	N	890808	22:05:47	163	239	44	7



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT. LON.	NADIR LAT. LON.	CC	TL	FILE #	DATE	GMT	AL	AZ	SL	GR
76	54	USA-MT	MISSOURI RIVER	48.0N 109.0W	48.2N 110.4W	18	LO	250	N H	890000	22:05:51	163	239	44 7
76	55	USA-MT	HELENA, MISSOURI RIVER	47.0N 112.0W	47.7N 109.5W	00	LO	250	N H	890000	22:06:03	163	241	44 7
82	45	USA-MT	IDAHO BORDER	45.5N 113.0W	45.0N 116.2W	10	LO	100	N H	890012	14:51:37	160	90	21 65
84	46	USA-MT	FLATHEAD LAKE, MOUNTAINS	47.5N 114.0W	46.4N 113.9W	10	HO	100	N H	890012	14:52:05	160	92	23 66
89	34	USA-MT	FLATHEAD LAKE	48.0N 113.5W	47.5N 119.4W	45	LO	100	N H	890010	16:06:34	161	103	32 35
89	36	USA-MT	FLATHEAD LAKE	48.0N 114.5W	48.4N 117.6W	30	LO	100	N H	890010	16:06:57	161	105	33 35
89	37	USA-MT	FLATHEAD LAKE	47.5N 113.5W	48.8N 116.9W	50	LO	100	N H	890010	16:07:06	161	106	33 35
89	38	USA-MT	FLATHEAD LAKE	48.0N 114.0W	49.5N 115.2W	20	HO	100	N H	890010	16:07:27	161	100	34 35
89	41	USA-MT	SASKATCHEWAN, MONTANA	47.5N 105.6W	52.8N 106.7W	50	HO	100	N H	890010	16:09:05	161	118	30 35
90	17	USA-MT	FLATHEAD LAKE	47.5N 114.6W	47.4N 116.0W	30	LO	250	N H	890012	21:09:07	162	213	54 70
90	18	USA-MT	FLATHEAD LAKE	48.0N 114.0W	47.0N 116.1W	10	LO	250	N H	890012	21:09:17	162	210	54 70
94	50	USA-MT	PANORAMA-ROCKY MTH.FRONT	48.0N 112.5W	50.6N 123.7W	50	HO	250	N H	890012	21:07:30	162	198	53 70
94	52	USA-MT	GREAT FALLS, FLATHEAD L.	48.0N 112.6W	49.0N 120.0W	40	HO	250	N H	890012	21:09:23	162	206	54 70
94	53	USA-MT	FLATHEAD L. BASIN, AGR.	47.5N 114.5W	48.2N 118.4W	40	LO	250	N H	890012	21:08:44	162	219	54 70
94	54	USA-MT	GREAT FALLS, MO. R.	47.5N 112.5W	47.3N 116.7W	70	LO	250	N H	890012	21:09:07	162	213	54 70
95	3	USA-MT	RED ROCK R. MADISON R.	45.0N 112.0W	44.4N 111.8W	75	LO	100	U H	890009	22:15:53	163	243	45 23
98	23	USA-MT	ENNIS L. RUBY RANGE	45.5N 113.5W	44.2N 114.6W	40	LO	250	N H	890009	22:15:00	163	239	46 23
100	54	USA-MT	CANYON FERRY, L.BIG BELT	47.0N 111.0W	45.3N 115.7W	35	LO	250	N H	890012	14:51:31	160	90	22 66
100	55	USA-MT	CANYON FERRY, L.BIG BELT	47.0N 111.6W	45.4N 115.5W	20	LO	250	N H	890012	14:51:33	160	91	22 66
100	56	USA-MT	UTTLE BELT MTHS. AGR.	47.0N 110.0W	45.5N 115.4W	40	LO	250	N H	890012	14:51:35	160	91	22 66
100	57	USA-MT	MO. R. HIGHWOOD MTHS.AGR	47.5N 110.3W	45.6N 115.3W	30	LO	250	N H	890012	14:51:37	160	91	22 66
100	58	USA-MT	GREAT FALLS	47.5N 111.5W	45.6N 115.1W	30	LO	250	N H	890012	14:51:39	160	91	22 66
100	59	USA-MT	LEWIS RA. SUN R. AGR.	47.5N 112.0W	45.8N 114.3W	35	LO	250	N H	890012	14:51:42	160	91	22 66
100	60	USA-MT	GREAT FALLS, MO. R. SUN R.	47.5N 112.0W	45.1N 114.3W	40	LO	250	N H	890012	14:51:51	160	92	23 66
100	61	USA-MT	SUN R. TETON R. AGR.	47.5N 112.0W	46.4N 113.9W	40	LO	250	N H	890012	14:51:57	160	92	23 66
100	62	USA-MT	LEWIS RANGE, TETON R.AGR	47.5N 112.5W	46.7N 113.4W	40	LO	250	N H	890012	14:52:04	160	93	23 66
153	39	USA-MT	L. EWEEL, MILK R. AGR.	48.5N 114.0W	50.2N 115.1W	75	HO	90	N H	890011	20:59:50	162	210	52 54
153	74	USA-MT	GREAT PLAINS, AGR.	48.0N 108.5W		70	LO	90	N H					
153	77	USA-MT	AGR. SPOKANE, FLATHEAD R	49.0N 114.0W	44.5N 117.0W	30	HO	90	N H	890012	14:51:31	160	89	21 66
153	78	USA-MT	MO R. GR. PLAINS, AGR.	47.5N 111.5W	44.7N 116.7W	30	HO	90	N H	890012	14:51:35	160	89	21 66
153	90	USA-MT	MO R. MARIUS R. LEWELL	48.0N 114.0W		30	HO	90	N H					
79	77	USA-NC	APPALACHIAN MOUNTAINS	35.5N 83.0W	35.0N 82.6W	10	HO	100	N Y	890009	12:52:15	161	87	25 17
151	127	USA-NC	APPALACHIAN MTHS.	34.5N 81.5W		30	HO	90	N Y					
151	100	USA-NC	GREENVILLE, SPARTANBURG	35.5N 81.5W	35.3N 85.2W	60	LO	250	N H	890010	20:56:59	164	250	43 32
82	60	USA-ND	AGRICULTURE, CAN. BORDER	49.0N 100.0W	49.8N 96.7W	5	HO	250	N H	890009	22:43:02	163	227	40 22
89	102	USA-ND	LAKE SAKAKAWEA	47.5N 101.5W	47.2N 102.2W	30	HO	140	N Y	890010	20:52:37	163	227	50 32
89	103	USA-ND	LAKE SAKAKAWEA	47.5N 101.5W	47.4N 101.5W	30	HO	100	N Y	890010	20:52:37	163	228	49 32
89	104	USA-ND	MINNESOTA, SOUTH DAKOTA	46.0N 97.0W	44.8N 96.9W	50	HO	100	N H	890010	20:53:42	163	237	48 32
152	105	USA-ND	L. SAKAKAWEA, MO. R. AGR	47.5N 102.0W	47.8N 102.2W	40	HO	250	N H	890010	20:52:20	163	227	50 32
153	8	USA-ND	PEMBINA R. RED R. PLAINS	48.5N 99.0W	50.8N 97.1W	50	HO	90	N H	890011	14:46:00	161	107	32 50
71	88	USA-NE	PLATTE RIVER	41.5N 101.5W	42.5N 101.1W	20	LO	100	N H	890000	22:00:00	163	253	40 7
71	89	USA-NE	PLATTE RIVER	41.0N 101.0W	42.0N 100.4W	5	HO	100	N Y	890000	22:00:20	163	255	40 7
71	90	USA-NE	PLATTE RIVER	40.5N 100.5W	41.7N 100.0W	5	HO	100	N Y	890000	22:00:26	163	255	40 7
71	91	USA-NE	PLATTE RIVER	40.5N 99.0W	41.3N 99.5W	0	HO	100	N Y	890000	22:00:34	163	256	39 7
73	56	USA-NE	GRAND ISLAND	41.0N 98.0W	40.7N 98.9W	20	HO	250	N H	890011	21:02:21	163	261	50 54
76	60	USA-NE	PLATTE RIVER, GRAND IS.	40.5N 98.0W	41.4N 99.8W	0	LO	250	N H	890000	22:00:27	163	255	40 7
78	36	USA-NE	OMAHA, COUNCIL BLUFFS	41.5N 96.0W	41.3N 98.3W	0	LO	250	N H	890009	14:25:05	161	95	30 18
81	3	USA-NE	PLATTE RIVER	41.0N 98.0W	38.0N 102.3W	60	LO	100	N H	890009	14:24:07	161	91	27 18
81	4	USA-NE	OMAHA, LINCOLN	41.0N 96.5W	39.7N 100.3W	30	LO	100	N H	890009	14:24:43	161	93	29 18
83	60	USA-NE	GRAND ISLAND, HASTINGS	40.5N 98.5W	41.4N 100.8W	70	HO	100	N H	890011	21:03:06	163	256	50 54
93	95	USA-NE	SCOTTSBLUFF, NO. PLATTE R.	42.0N 104.0W	42.3N 104.7W	0	HO	250	N Y	890010	14:34:01	161	93	27 34
93	96	USA-NE	SCOTTSBLUFF, NO. PLATTE R.	42.0N 102.5W	42.5N 104.5W	5	HO	250	N Y	890010	14:34:04	161	93	27 34
93	97	USA-NE	NORTH PLATTE R. AGR.	41.5N 103.0W	42.6N 104.4W	20	LO	250	N Y	890010	14:34:06	161	94	27 34
93	98	USA-NE	NO. PLATTE R. L. MCCONAUGH	41.5N 102.5W	42.6N 104.2W	5	LO	250	N H	890010	14:34:08	161	94	27 34
96	84	USA-NE	H/S PLATTE R.L. MCCONAUGH	41.0N 101.5W	43.3N 103.3W	40	LO	250	N H	890010	14:34:14	161	95	28 34
151	155	USA-NE	GREAT PLAINS, PLATTE R.	40.5N 99.0W	38.5N 101.7W	30	HO	90	N H	890009	14:24:06	161	91	28 18
151	210	USA-NH	C.COD, INTERNAL WAVES	44.0N 71.0W	43.6N 64.6W	60	HO	90	N Y	890009	19:15:06	163	246	44 21
151	215	USA-NH	C.COD, INTERNAL WAVES	43.5N 71.5W	43.1N 63.7W	50	HO	90	N Y	890009	19:15:17	163	248	44 21
152	120	USA-NH	COIN R. GREEN MTHS.	44.5N 71.5W	47.3N 73.8W	20	LO	250	N H	890010	13:05:17	161	103	32 33
78	6	USA-NJ	PHILADELPHIA	40.0N 75.0W	40.6N 76.2W	0	HO	250	N H	890009	12:54:10	161	94	30 17
79	87	USA-NJ	NEWARK, NEW YORK	41.0N 74.0W	40.8N 75.8W	20	HO	100	N Y	890009	12:54:17	161	95	30 17
87	13	USA-NM	RIO GRANDE, WHITE SANDS	32.0N 106.5W	34.3N 111.3W	70	HO	100	N H	890010	22:26:33	164	252	45 39
88	31	USA-NM	RIO GRANDE, WHITE SANDS	33.0N 107.0W	37.7N 110.7W	40	LO	250	N H	890010	22:26:52	164	253	45 39
88	32	USA-NM	RIO GRANDE	32.5N 107.5W	34.9N 107.7W	5	LO	250	N H	890010	22:27:51	164	258	43 39
93	82	USA-NM	CHACO R. SAN JUAN BASIN	36.0N 108.0W	37.2N 110.9W	40	LO	250	N H	890010	14:32:02	161	87	22 34
96	83	USA-NM	SAN JUAN R. RIO GRANDE	37.0N 107.0W	37.6N 110.5W	30	LO	250	N H	890010	14:32:10	161	87	22 34
151	145	USA-NM	RIO GRANDE, WHITE SANDS	32.0N 107.0W	30.5N 109.6W	25	HO	90	N H	890009	14:21:25	161	83	20 18
151	146	USA-NM	RIO GRANDE, WHITE SANDS	32.0N 107.0W		20	LO	90	N H					
151	147	USA-NM	RIO GRANDE, WHITE SANDS	33.5N 106.5W	31.9N 108.4W	30	LO	90	N H	890009	14:21:52	161	84	21 18
151	148	USA-NM	RIO GRANDE, WHITE SANDS	33.5N 106.0W	32.5N 107.8W	40	LO	90	N H	890009	14:22:04	161	85	22 18

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
151	149	USA-NM	RIO GRANDE, ALBUQUERQUE	35.0N 106.5W	33.6N 106.8W	48 LO	90 N N 890809	14:22:26	161 86 23 18
151	150	USA-NM	ALBUQUERQUE, RIO GRANDE	36.0N 106.0W		50 HO	90 N N		
84	44	USA-NV	BLACK ROCK DESERT	41.9N 119.0W	43.5N 118.4W	28 LO	100 N N 890812	14:50:58	168 88 28 66
94	54	USA-NV	GREAT BASIN, PANORAMA	40.0N 116.5W	45.2N 113.1W	58 HO	250 N N 890812	21:39:58	163 220 54 70
78	7	USA-NY	HUDSON RIVER	41.5N 74.0W	41.4N 75.2W	5 NV	250 N N 890809	12:54:27	161 96 31 17
82	76	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	38.3N 80.6W	60 LO	250 N N 890809	20:47:33	163 257 41 22
82	77	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	38.1N 80.4W	60 LO	250 N N 890809	20:47:36	163 257 41 22
82	78	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	38.0N 80.3W	60 LO	250 N N 890809	20:47:38	163 257 41 22
82	79	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	37.9N 80.2W	70 LO	250 N N 890809	20:47:41	164 258 41 22
82	80	USA-NY	LAKE ONTARIO, LAKE ERIE	43.0N 79.0W	37.8N 80.1W	60 LO	250 N N 890809	20:47:43	164 258 41 22
85	49	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.3N 80.3W	5 NV	100 O N 890810	13:03:52	161 95 28 33
85	50	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.5N 80.1W	5 NV	100 O N 890810	13:03:56	161 95 28 33
85	51	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.6N 79.8W	5 NV	100 O N 890810	13:04:00	161 96 28 33
85	52	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.9N 79.4W	5 NV	100 O N 890810	13:04:06	161 96 29 33
85	53	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.0N 79.3W	5 NV	100 O N 890810	13:04:08	161 96 29 33
85	54	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.4N 78.7W	5 NV	100 O N 890810	13:04:18	161 97 28 33
85	55	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.6N 78.5W	5 NV	100 O N 890810	13:04:21	161 97 29 33
85	56	USA-NY	FINGER LAKES, L. ONTARIO	42.5N 76.5W	45.3N 77.3W	20 LO	100 O N 890810	13:04:38	161 98 30 33
85	57	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.5W	45.4N 77.2W	30 LO	100 O N 890810	13:04:40	161 98 30 33
85	58	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.0W	45.6N 76.8W	30 LO	100 O N 890810	13:04:45	161 98 31 33
86	41	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	47.4N 73.5W	48 HO	100 O N 890810	13:05:31	161 103 33 33
86	49	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.3N 80.3W	5 NV	100 O N 890810	13:05:58	161 95 28 33
86	50	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.5N 80.1W	5 NV	100 O N 890810	13:05:53	161 95 28 33
86	51	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.6N 79.8W	5 NV	100 O N 890810	13:05:57	161 96 28 33
86	52	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	43.9N 79.4W	5 NV	100 O N 890810	13:06:03	161 96 29 33
86	53	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.0N 79.3W	5 NV	100 O N 890810	13:06:06	161 96 29 33
86	54	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.5N 78.6W	5 NV	100 O N 890810	13:06:16	161 97 29 33
86	55	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	44.6N 78.5W	5 NV	100 O N 890810	13:06:18	161 97 29 33
86	56	USA-NY	FINGER LAKES, L. ONTARIO	42.5N 76.5W	45.3N 77.3W	20 LO	100 O N 890810	13:06:15	161 98 30 33
86	57	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.5W	45.4N 77.1W	30 LO	100 O N 890810	13:06:32	161 98 30 33
86	58	USA-NY	FINGER LAKES, L. ONTARIO	43.0N 77.0W	45.6N 76.8W	30 LO	100 O N 890810	13:06:43	161 98 31 33
86	61	USA-NY	LAKE ERIE, LAKE ONTARIO	43.0N 79.0W	47.4N 73.5W	48 HO	100 O N 890810	13:05:28	161 103 33 33
151	150	USA-NY	CATSKILL MTRS. NY CITY	41.5N 74.6W	42.2N 74.1W	30 NV	90 N Y 890809	12:54:17	161 97 31 17
151	151	USA-NY	CATSKILL MTRS. NY CITY	41.8N 74.5W		30 NV	90 N Y		
151	152	USA-NY	CATSKILL MTRS. HUDSON R.	42.5N 74.6W	42.7N 73.5W	20 NV	90 N Y 890809	12:54:57	161 98 32 17
151	153	USA-NY	L. CHAMPLAIN, MONTREAL	44.0N 74.0W	43.6N 72.1W	15 LO	90 N N 890809	12:55:15	161 99 33 17
152	112	USA-NY	NIAGARA R. BUFFALO, HAZE	43.0N 78.5W	42.5N 81.5W	10 LO	250 H N 890810	13:03:24	161 84 27 33
152	115	USA-NY	MOHAWK R. VAL. SYRACUSE	43.5N 75.0W	44.5N 78.6W	48 LO	250 N Y 890810	13:04:09	161 97 29 33
152	116	USA-NY	MOHAWK R. VAL. CATSKILLS	42.5N 74.5W	44.7N 78.2W	48 LO	250 N Y 890810	13:04:15	161 97 30 33
152	117	USA-NY	UTICA, WATERTOWN, ADAMT	41.0N 75.6W	45.2N 77.4W	5 LO	250 H N 890810	13:04:27	161 98 30 33
73	22	USA-OH	LAKE ERIE, TOLEDO	41.5N 83.5W	45.2N 82.4W	88 LO	250 H N 890811	19:38:11	163 229 51 53
73	23	USA-OH	LAKE ERIE	41.5N 82.8W	45.1N 82.2W	88 LO	250 H N 890811	19:38:14	163 229 51 53
76	8	USA-OH	TOLEDO, LAKE ERIE	41.5N 83.0W	43.1N 78.9W	10 LO	250 H N 890809	20:37:22	163 253 40 6
76	10	USA-OH	CLEVELAND, LAKE ERIE	41.5N 82.8W	42.6N 78.9W	40 LO	250 H N 890809	20:37:32	163 254 40 6
85	42	USA-OH	OHIO RIVER	39.5N 84.5W	38.2N 84.1W	5 NV	100 O N 890810	13:02:15	161 89 24 33
85	43	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	39.9N 84.5W	5 NV	100 O N 890810	13:02:17	161 90 25 33
85	44	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.1N 84.6W	5 NV	100 O N 890810	13:02:41	161 90 25 33
85	45	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.2N 84.4W	5 NV	100 O N 890810	13:02:45	161 90 25 33
85	46	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.6N 84.9W	5 NV	100 O N 890810	13:02:52	161 91 25 33
85	47	USA-OH	COLUMBUS	40.0N 83.6W	40.9N 83.6W	5 NV	100 O N 890810	13:02:59	161 91 26 33
85	48	USA-OH	COLUMBUS	40.0N 83.8W	41.2N 83.2W	5 NV	100 O N 890810	13:03:05	161 92 26 33
86	42	USA-OH	OHIO RIVER	39.5N 84.5W	38.9N 84.0W	5 NV	100 O N 890810	13:02:13	161 88 24 33
86	43	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	39.9N 84.9W	5 NV	100 O N 890810	13:02:34	161 90 25 33
86	44	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.1N 84.6W	5 NV	100 O N 890810	13:02:38	161 90 25 33
86	45	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.2N 84.4W	5 NV	100 O N 890810	13:02:42	161 90 25 33
86	46	USA-OH	DAYTON, CINCINNATI	40.0N 84.6W	40.6N 84.6W	5 NV	100 O N 890810	13:02:49	161 91 25 33
86	47	USA-OH	COLUMBUS	40.0N 83.8W	40.9N 83.6W	5 NV	100 O N 890810	13:02:56	161 91 26 33
86	48	USA-OH	COLUMBUS	40.0N 83.8W	41.2N 83.2W	5 NV	100 O N 890810	13:03:03	161 92 26 33
90	1	USA-OH	OHIO RIVER	38.5N 82.5W	38.1N 80.6W	70 LO	250 N N 890812	19:42:07	163 241 52 69
90	5	USA-OH	OHIO RIVER	38.9N 84.6W	37.1N 79.4W	80 LO	250 H N 890812	19:42:29	163 244 52 69
94	34	USA-OH	OHIO R. FIREBREAKS	39.0N 82.5W	36.7N 80.8W	20 LO	250 H N 890812	11:47:33	168 81 13 64
94	36	USA-OH	OHIO R. GR. FOG, AGR.	40.0N 81.5W	37.9N 79.5W	20 LO	250 H N 890812	11:47:58	168 82 14 64
94	37	USA-OH	CLEVELAND, L. ERIE	41.0N 81.5W	38.8N 78.5W	15 LO	250 H N 890812	11:48:16	168 83 15 64
100	93	USA-OH	CINCINNATI, OHIO R. AGR.	39.5N 84.5W	41.6N 84.0W	30 LO	250 N Y 890812	19:40:54	163 234 53 69
100	94	USA-OH	CINCINNATI, OHIO R. AGR.	39.5N 84.5W	40.8N 83.8W	30 LO	250 N Y 890812	19:40:57	163 234 53 69
100	95	USA-OH	CINCINNATI, OHIO R. AGR.	39.5N 84.6W	40.6N 83.5W	20 LO	250 H N 890812	19:41:03	163 235 53 69
100	96	USA-OH	TOLEDO, MAUMEE R. LERIE	41.5N 83.5W	40.3N 83.2W	50 LO	250 H N 890812	19:41:08	163 236 53 69
100	97	USA-OH	TOLEDO, MAUMEE R. LERIE	41.5N 83.8W	40.2N 83.1W	40 LO	250 H N 890812	19:41:10	163 236 53 69
100	99	USA-OH	TOLEDO, MAUMEE RIVER	41.5N 84.0W	40.1N 82.8W	70 LO	250 H N 890812	19:41:14	163 236 53 69
100	100	USA-OH	MARION, MANSFIELD, AGR.	41.0N 83.0W	43.6N 82.7W	50 LO	250 N Y 890812	19:41:16	163 237 53 69

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
190	181	USA-OH	MARION, MANSFIELD, AGR.	40.5N 83.6W 36.9N	82.6W	58 LO	250 N Y	890612	19:41:18	163 237 53 69
190	182	USA-OH	AGRICULTURE, HAZE	41.0N 84.8W 39.7N	82.4W	78 LO	250 N N	890612	19:41:21	163 237 53 69
190	183	USA-OH	CINCINNATI, OHIO R.	39.8N 84.5W 39.2N	81.8W	25 LO	250 N N	890612	19:41:30	163 238 53 69
151	231	USA-OH	OHIO R. NEW R. JGR.	39.5N 82.5W		0 LO	90 N Y			
152	188	USA-OH	OHIO R. CINCINNATI	39.5N 84.0W 38.7N	84.2W	18 LO	250 N N	890610	13:02:03	161 89 24 33
152	189	USA-OH	OHIO R. COLUMBUS, HAZE	40.0N 82.8W 39.3N	85.6W	18 LO	250 N N	890610	13:02:14	161 89 24 33
153	180	USA-OH	L. ERIE, PANORAMA, AGR.	41.0N 83.5W		90 HO	90 N N			
153	181	USA-OH	L. ERIE, PANORAMA, AGR.	40.5N 82.5W		85 HO	90 N N			
71	92	USA-OK	OKLAHOMA CITY	36.0N 97.8W 38.8N	95.6W	38 LO	190 N N	890608	22:09:44	164 262 37 7
71	93	USA-OK	OKLAHOMA CITY	36.0N 97.8W 37.7N	95.1W	38 LO	190 N N	890608	22:09:52	164 262 36 7
71	94	USA-OK	OKLAHOMA CITY, TULSA	35.5N 96.5W 37.0N	94.4W	48 LO	190 N N	890608	22:10:05	164 263 36 7
73	59	USA-OK	TULSA	36.0N 96.8W 37.0N	94.6W	58 NV	250 N N	890611	21:03:42	164 258 48 54
76	61	USA-OK	AGRICULTURE	36.5N 98.8W 39.8N	97.7W	5 LO	250 N N	890606	22:09:04	164 259 38 7
76	62	USA-OK	EUFALA RESERVOIR	35.0N 95.5W 38.2N	95.8W	20 LO	250 N N	890606	22:09:38	164 261 37 7
83	61	USA-OK	TULSA, KEYSTONE LAKE	36.0N 96.5W 36.6N	94.2W	70 LO	190 N N	890611	21:04:57	164 258 48 54
83	62	USA-OK	TULSA, KEYSTONE LAKE	36.0N 96.8W 36.6N	94.8W	78 LO	190 N N	890611	21:05:01	164 251 48 54
74	88	USA-OR	CASCADES, COASTLINE	45.0N 124.8W 44.7N	132.8W	58 LC	250 N N	890611	16:13:39	161 93 25 51
82	4	USA-OR	LAKE ABERT	42.5N 120.6W 40.1N	122.8W	48 LO	250 N N	890609	15:55:17	161 93 29 19
82	5	USA-OR	ALYDOR DESERT	42.5N 118.5W 41.0N	121.6W	18 LO	250 N Y	890609	15:55:38	161 93 36 19
82	6	USA-OR	MOUNTAINS, LAVA	43.0N 118.5W 41.6N	121.8W	5 LO	250 N Y	890609	15:55:49	161 93 38 19
88	28	USA-OR	MOUNT HOOD	45.5N 121.5W 46.5N	122.8W	8 NV	250 N N	890610	22:23:54	163 231 49 39
89	30	USA-OR	CASCADES	44.0N 121.5W 44.9N	123.9W	48 LO	190 N N	890610	16:05:30	161 97 29 35
89	31	USA-OR	CASCADES	43.0N 120.5W 45.1N	123.6W	30 LO	190 N N	890610	16:05:54	161 94 29 35
89	32	USA-OR	CENTRAL OREGON	44.5N 119.5W 46.4N	121.6W	50 LO	190 N N	890610	16:06:06	161 100 31 35
94	51	USA-OR	COLUMBIA R. YAKIMA VALLEY	45.0N 120.8W 49.5N	121.2W	45 HO	250 N N	890612	21:06:09	162 204 53 70
95	1	USA-OR	SNAKE R. LEWISTON, CLARKST.	46.0N 117.0W 46.3N	114.7W	48 LO	190 U N	890609	22:15:11	163 238 46 23
95	2	USA-OR	PANORAMA-EASTERN DESERT	41.5N 119.5W 45.8N	113.8W	80 HO	190 U N	890609	22:15:24	163 240 44 23
98	14	USA-OR	COLUMBIA R. CASCADES	45.5N 121.5W 52.2N	128.8W	68 HO	250 N N	890609	22:22:23	162 216 49 23
153	75	USA-OR	OR/CA. PANORAMA, CLEAR	42.0N 126.8W 43.8N	117.5W	38 HO	90 N N	890612	14:51:16	160 88 20 66
153	79	USA-OR	SNAKE R. WALLOWA MTS.	44.5N 118.0W		58 HO	90 N N			
79	84	USA-PA	PHILADELPHIA	40.0N 75.5W 42.3N	76.6W	5 NV	190 N Y	890609	12:54:04	161 94 30 17
152	110	USA-PA	L. ERIE, ERIE ALLEGHENY R.	41.5N 80.0W 41.4N	83.8W	5 LO	250 N N	890610	13:02:59	161 92 26 33
152	111	USA-PA	MONONGAHELA R. PITTSBURGH	40.0N 79.5W 41.7N	82.5W	48 LO	250 N N	890610	13:03:07	161 93 27 33
152	114	USA-PA	SUSQUEHANNA R. CATSKILLS	41.5N 76.8W 44.3N	78.8W	48 LO	250 N N	890610	13:04:04	161 97 29 33
79	78	USA-SC	APPALACHIAN MOUNTAINS	35.0N 82.5W 34.6N	82.6W	18 NV	190 N N	890609	12:52:07	161 87 24 17
87	8	USA-SC	HARTWELL RESERVOIR	34.5N 83.8W 33.7N	83.6W	68 NV	190 N N	890610	20:57:54	164 260 42 38
94	32	USA-SC	AGR. HAZE	34.3N 83.3W		68 LO	250 N N	890612	11:46:44	160 78 18 64
152	181	USA-SC	GREENVILLE, SPARTANBURG	34.5N 82.0W		68 LO	250 N N			
152	182	USA-SC	GREENVILLE, HARTWELL RES.	34.0N 82.0W 34.8N	84.7W	50 LO	250 N N	890610	20:57:09	164 259 43 38
76	56	USA-SD	MISSOURI R. ERIE LAKE GAZE	44.5N 120.5W 44.8N	104.0W	5 LO	250 N N	890608	22:07:14	163 244 42 7
76	57	USA-SD	MISSOURI R. LAKE SHARPE	44.0N 100.8W 44.4N	103.9W	5 LO	250 N N	890608	22:07:22	163 249 42 7
76	58	USA-SD	MISSOURI R. LAKE SHARPE	43.5N 99.5W 43.9N	103.1W	8 LO	250 N N	890608	22:07:34	163 250 41 7
76	59	USA-SD	MISSOURI RIVER	43.0N 99.8W 43.5N	102.5W	5 LO	250 N N	890608	22:07:44	163 251 41 7
81	5	USA-SD	MISSOURI RIVER	44.0N 97.8W 40.7N	99.1W	28 LO	190 N N	890609	14:25:04	161 94 30 18
96	85	USA-SD	MO. R. PLAINS, AGR.	45.0N 99.8W 44.3N	101.9W	58 LO	250 N N	890610	14:34:36	161 96 29 34
153	7	USA-SD	MO. R. LOAHE, CR. PLAINS	43.5N 100.5W 48.9N	101.3W	70 HO	90 N N	890611	14:35:09	161 102 30 50
78	78	USA-TN	APPALACHIAN MOUNTAINS	36.0N 82.5W 35.4N	82.8W	18 NV	190 N Y	890609	12:52:22	161 88 25 17
79	79	USA-TN	APPALACHIAN MOUNTAINS	36.5N 82.0W 35.8N	81.6W	18 NV	190 N Y	890609	12:52:30	161 88 25 17
81	85	USA-TN	APPALACHIAN MOUNTAINS	36.5N 82.5W 37.2N	79.1W	78 LO	190 N N	890609	20:48:03	164 259 48 22
85	31	USA-TN	MISSISSIPPI RIVER	35.5N 90.6W 35.1N	90.1W	5 LO	190 O N	890610	13:00:59	161 85 29 33
85	32	USA-TN	MISSISSIPPI RIVER	35.5N 90.8W 35.3N	89.8W	5 NV	190 O N	890610	13:01:02	161 85 29 33
86	31	USA-TN	MISSISSIPPI RIVER	35.5N 90.6W 35.3N	89.8W	5 NV	190 O N	890610	13:01:06	161 85 29 33
87	6	USA-TN	CHATTANOOGA	35.0N 85.0W 35.7N	85.6W	70 NV	190 N Y	890610	20:54:54	164 257 43 38
87	7	USA-TN	CHATTANOOGA	35.0N 85.0W 35.5N	85.4W	78 NV	190 N Y	890610	20:54:59	164 257 43 38
88	7	USA-TN	CHATTANOOGA	35.0N 85.5W 35.4N	85.3W	48 NV	250 N N	890610	20:57:09	164 258 43 38
88	8	USA-TN	CHATTANOOGA	35.0N 85.5W 34.9N	84.8W	48 NV	250 N N	890610	20:57:18	164 258 43 38
94	38	USA-TN	APP. MTS. HWASSEE R.	35.0N 85.0W 32.9N	84.6W	28 LO	250 N N	890612	11:46:17	160 78 9 64
94	31	USA-TN	APP. MTS. HAZE, GR. FOG	35.5N 84.8W 33.6N	84.0W	38 LO	250 N N	890612	11:46:38	160 78 9 64
94	33	USA-TN	CLINCH MTH. HOLSTON MTH	36.5N 83.0W 34.0N	81.6W	48 LO	250 N N	890612	11:47:18	160 80 12 64
151	126	USA-TX	APPALACHIAN MTS.	36.5N 82.0W 34.1N	81.3W	28 NV	90 N Y	890609	12:52:37	161 89 26 17
85	10	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.6N	94.2W	58 NV	190 O N	890610	12:57:55	161 78 11 33
85	11	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.9N	94.1W	58 NV	190 O N	890610	12:57:59	161 78 11 33
85	14	USA-TX	CLOUDS	29.5N 96.0W 29.1N	95.5W	98 NV	190 O N	890610	12:59:00	161 80 14 33
85	15	USA-TX	CLOUDS	29.5N 95.5W 29.2N	95.5W	98 NV	190 O N	890610	12:59:02	161 80 14 33
85	16	USA-TX	CLOUDS, GALVESTON BAY	29.5N 94.5W 28.6N	95.1W	88 NV	190 O N	890610	12:59:10	161 80 15 33
85	17	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 29.7N	95.0W	88 NV	190 O N	890610	12:59:13	161 80 15 33
85	18	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.0N	94.8W	88 NV	190 O N	890610	12:59:18	161 81 15 33
85	19	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.2N	94.6W	70 NV	190 N N	890610	12:59:21	161 81 15 33
85	20	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 30.4N	94.4W	80 NV	190 O N	890610	12:59:26	161 81 15 33

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
85	21	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.6N	94.3W	88	NV	100	O	N	890810	12:59:29	161	81	16	33
85	22	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.8N	94.1W	88	NV	100	N	N	890810	12:59:33	161	81	16	33
85	23	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.5W 30.9N	94.0W	78	NV	100	N	N	890810	12:59:35	161	81	16	33
85	24	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.0W 31.1N	93.8W	60	NV	100	N	N	890810	12:59:39	161	81	16	33
85	25	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.4N	93.5W	50	NV	100	O	N	890810	12:59:46	161	82	16	33
85	26	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.7N	93.3W	40	NV	100	N	N	890810	12:59:51	161	82	17	33
85	27	USA-TX	CLOUDS	29.0N 95.0W 32.7N	92.4W	90	LO	100	O	N	890810	13:00:18	161	83	18	33
85	28	USA-TX	CLOUDS	29.5N 95.5W 32.9N	92.2W	90	HO	100	O	N	890810	13:00:14	161	83	18	33
86	10	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.7N	98.2W	50	NV	100	O	N	890810	12:57:53	161	78	11	33
86	11	USA-TX	GULF OF MEXICO COASTLINE	26.0N 97.5W 25.9N	98.1W	50	NV	100	O	N	890810	12:57:56	161	78	11	33
86	14	USA-TX	CLOUDS	29.5N 96.0W 29.1N	95.5W	90	NV	100	O	N	890810	12:58:57	161	80	14	33
86	15	USA-TX	CLOUDS, GALVESTON BAY	29.5N 96.0W 29.2N	95.4W	90	NV	100	N	N	890810	12:59:00	161	80	14	33
86	16	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 29.6N	95.1W	90	NV	100	O	N	890810	12:59:06	161	80	15	33
86	17	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 29.8N	94.9W	90	NV	100	O	N	890810	12:59:11	161	80	15	33
86	18	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.0N	94.0W	80	NV	100	O	N	890810	12:59:15	161	81	15	33
86	19	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.2N	94.6W	70	NV	100	N	N	890810	12:59:19	161	81	15	33
86	20	USA-TX	CLOUDS, GALVESTON BAY	29.5N 95.0W 30.4N	94.4W	80	NV	100	O	N	890810	12:59:23	161	81	15	33
86	21	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.6N	94.2W	80	NV	100	O	N	890810	12:59:27	161	81	16	33
86	22	USA-TX	CLOUDS, GALVESTON BAY	30.0N 95.0W 30.8N	94.1W	80	NV	100	N	N	890810	12:59:30	161	81	16	33
86	23	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.5W 30.9N	94.0W	70	NV	100	O	N	890810	12:59:33	161	81	16	33
86	24	USA-TX	CLOUDS, GALVESTON BAY	30.5N 95.5W 31.1N	93.8W	60	NV	100	O	N	890810	12:59:37	161	81	16	33
86	25	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.5N	93.5W	50	NV	100	O	N	890810	12:59:44	161	82	16	33
86	26	USA-TX	CLOUDS, LOUISIANA BORDER	30.0N 94.0W 31.7N	93.3W	40	NV	100	O	N	890810	12:59:48	161	82	17	33
86	27	USA-TX	CLOUDS	29.0N 95.0W 32.7N	92.4W	90	LO	100	O	N	890810	13:00:18	161	83	18	33
86	28	USA-TX	CLOUDS	29.5N 95.5W 32.9N	92.2W	90	HO	100	O	N	890810	13:00:14	161	83	18	33
90	25	USA-TX	DALLAS, FT. WORTH	32.8N 97.0W 32.2N	96.6W	50	LO	250	N	N	890812	21:14:16	164	252	50	70
90	26	USA-TX	WACO	31.5N 97.0W 32.0N	96.2W	30	NV	250	N	N	890812	21:14:24	164	253	50	70
90	27	USA-TX	FORT HOOD	31.0N 98.0W 32.5N	97.9W	60	NV	250	N	Y	890812	21:14:31	164	253	50	70
90	28	USA-TX	TEMPLE, FORT HOOD	31.0N 97.5W 32.1N	97.5W	20	NV	250	N	Y	890812	21:14:39	164	254	50	70
90	29	USA-TX	HOUSTON	30.0N 95.5W 30.2N	95.9W	50	NV	250	N	Y	890812	21:15:15	164	258	49	70
90	30	USA-TX	HOUSTON	29.5N 95.0W 29.7N	95.4W	60	NV	250	N	Y	890812	21:15:25	164	259	49	70
90	31	USA-TX	GALVESTON	29.5N 95.0W 29.1N	95.1W	50	NV	250	N	Y	890812	21:15:32	164	258	48	70
90	32	USA-TX	FREEMONT	29.0N 95.5W 29.8N	94.8W	20	NV	250	N	N	890812	21:15:39	164	260	48	70
90	33	USA-TX	PORT ARTHUR	29.5N 94.0W 29.6N	94.5W	20	NV	250	N	N	890812	21:15:46	164	260	48	70
94	60	USA-TX	SALT FORK-RED R. AGR.	35.0N 101.0W 37.0N	103.3W	60	HO	250	N	N	890812	21:12:40	163	242	52	70
94	61	USA-TX	LLANO-ESTACADO-PIVOT IRR.	35.0N 100.5W 36.4N	101.7W	65	LO	250	N	N	890812	21:13:10	163	245	52	70
94	62	USA-TX	BRAZOS R/BASH AGR.	31.0N 97.0W 33.5N	98.1W	70	LO	250	N	N	890812	21:14:08	164	251	51	70
94	63	USA-TX	HOUSTON AREA, GALV. BAY	30.0N 95.5W 31.1N	96.6W	70	LO	250	N	N	890812	21:14:57	164	256	49	70
94	64	USA-TX	HOUSTON AREA, GALV. BAY	29.5N 95.0W 30.7N	96.3W	70	LO	250	N	N	890812	21:15:03	164	257	49	70
95	11	USA-TX	DALLAS-VERY DARK	32.5N 97.0W 32.5N	97.0W	0	NV	100	U	N	890809	22:22:07	164	266	37	23
95	12	USA-TX	GALVESTON BAY-VERY DARK	29.0N 94.5W 29.3N	95.5W	15	NV	100	U	N	890809	22:22:58	164	269	35	23
98	25	USA-TX	DALLAS/FT.WORTH AREA	33.0N 97.0W 33.5N	100.7W	5	LO	250	N	N	890809	22:19:03	164	261	39	23
98	30	USA-TX	CEDAR CR. RES. NEW AIR.	32.0N 96.0W 34.0N	100.0W	0	LO	250	N	N	890809	22:19:16	164	262	39	23
98	31	USA-TX	DALLAS/FT.WORTH AREA	33.0N 97.0W 33.6N	98.8W	0	NV	250	N	Y	890809	22:19:42	164	264	38	23
98	32	USA-TX	FT.WORTH/ARLINGTON AREA	32.5N 97.5W 33.4N	98.1W	0	NV	250	N	Y	890809	22:19:46	164	264	38	23
98	33	USA-TX	CEDAR CR.RES. NEW AIR.	32.0N 96.0W 33.0N	98.2W	0	LO	250	N	N	890809	22:19:53	164	265	37	23
98	34	USA-TX	BELTON, TEMPLE, LITTLE R	31.0N 97.5W 31.0N	97.2W	5	NV	250	N	N	890809	22:20:15	164	266	36	23
98	35	USA-TX	AUSTIN, BERGSTROM AFB	30.0N 97.5W 31.3N	96.6W	50	LO	250	N	N	890809	22:20:23	164	267	36	23
98	36	USA-TX	HOUSTON, SHEP CHANNEL	30.0N 95.5W 30.9N	96.3W	0	LO	250	N	Y	890809	22:20:35	164	268	36	23
98	37	USA-TX	HOUSTON, SHEP CHANNEL	29.5N 95.0W 30.5N	96.0W	0	LO	250	N	Y	890809	22:20:42	164	268	35	23
98	38	USA-TX	GALVESTON & BAY, EFFLU.	29.5N 94.5W 30.2N	95.7W	0	LO	250	N	N	890809	22:20:49	164	269	35	23
99	26	USA-TX	MID LAT TROP W/BCLNC ZNE	30.5N 94.0W 28.5N	96.0W	70	HO	50	N	N	890810	12:58:38	161	80	14	33
99	27	USA-TX	MID LAT TROP W/BCLNC ZNE	31.0N 94.0W 29.1N	95.5W	70	HO	50	N	N	890810	12:58:44	161	80	14	33
151	245	USA-TX	LUBBOCK, RED R. AGR.	33.0N 102.0W		30	HO	90	N	N						
151	246	USA-TX	SAN ANGELO, GR PL. AGR.	29.0N 99.0W		40	HO	90	N	N						
151	247	USA-TX	DALLAS/FT.WORTH, GR. PL.	31.5N 96.5W		30	HO	90	N	N						
152	91	USA-TX	RIO GRANDE, LAG. MADRE	26.0N 97.5W 25.6N	98.2W	30	NV	250	N	Y	890810	12:57:45	161	78	11	33
152	92	USA-TX	RIO GRANDE, LAG. MADRE	26.0N 97.5W		30	NV	250	N	Y						
152	93	USA-TX	CORPUS CHRISTI BAY	27.5N 97.5W 26.8N	97.3W	70	NV	250	N	Y	890810	12:58:07	161	79	12	33
152	94	USA-TX	CORPUS CHRISTI BAY	28.0N 97.0W		60	NV	250	N	Y						
152	95	USA-TX	GALVESTON BAY, EAST BAY	29.0N 95.0W 28.5N	96.0W	80	NV	250	N	Y	890810	12:58:40	161	80	14	33
152	96	USA-TX	GALVESTON BAY, EAST BAY	29.5N 95.0W		75	NV	250	N	Y						
152	97	USA-TX	GALVESTON BAY, CLEAR L.	29.5N 95.5W 29.4N	95.3W	70	NV	250	N	Y	890810	12:58:56	161	80	14	33
152	98	USA-TX	GALVESTON BAY, CLEAR L.	29.5N 95.0W 29.8N	94.8W	75	NV	250	N	Y	890810	12:59:05	161	80	15	33
152	99	USA-TX	TRINITY BAY, L. ANAHUAC	29.5N 95.0W		60	NV	250	N	Y						
153	111	USA-TX	GULF COAST, LAKE	30.0N 94.5W		15	HO	90	N	N						
90	19	USA-UT	GREAT SALT LAKE	41.5N 112.0W 43.4N	110.3W	30	LO	250	N	N	890812	21:10:42	163	226	54	70
90	20	USA-UT	GREAT SALT LAKE	41.0N 112.0W 43.2N	110.0W	40	LO	250	N	N	890812	21:10:47	163	227	54	70
94	57	USA-UT	GR.SALT LAKE, BEAR L.	42.0N 112.0W 44.6N	112.1W	75	LO	250	N	N	890812	21:10:13	163	222	54	70
95	5	USA-UT	GR.SALT LAKE, BEAR L.	41.5N 112.5W 43.4N	110.1W	70	LO	150	U	N	890809	22:16:20	163	246	45	23

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC-TL	FL E S DATE	GMT	SUN AL AZ EL OR
95	6	USA-UT	GRSALT LAKE, BEAR L.	41.5N 112.5W	43.1N 109.7W	78 LO	100 U N 890809	22:16:26	163 247 44 23
95	7	USA-UT	GRSALT LAKE, BEAR L.	41.0N 112.0W	42.0N 109.5W	75 LO	100 U N 890809	22:16:32	163 247 44 23
98	21	USA-UT	GR. SALT L. ANTELOPE L.	41.5N 112.5W	47.8N 117.5W	75 LO	250 N N 890809	22:14:20	163 234 47 23
98	26	USA-UT	BEAR L. WASATCH RANGE	42.0N 111.5W	41.6N 111.8W	54 LO	250 N N 890809	22:15:49	163 243 45 23
153	3	USA-UT	GREAT SALT LAKE/DESERT	40.5N 113.5W	42.5N 112.2W	85 LO	30 N N 890811	11:42:33	161 90 23 50
153	109	USA-UT	GR. SALT LAKE, PANORAMA	41.5N 113.0W		78 HO	90 N N		
153	110	USA-UT	COL. PLAT. CANYON LANDS	37.5N 112.5W		78 HO	90 N N		
78	1	USA-VA	HARRISONBURG	38.5N 79.0W	37.6N 79.7W	5 NV	250 N Y 890809	12:53:08	161 90 27 17
78	2	USA-VA	WASHINGTON D.C.	39.0N 77.5W	38.7N 78.5W	8 NV	250 N Y 890809	12:53:30	161 92 22 17
79	80	USA-VA	APPALACHIAN MOUNTAINS	37.5N 79.5W	36.8N 80.6W	30 NV	100 N Y 890809	12:52:51	161 89 26 17
79	81	USA-VA	APPALACHIAN MOUNTAINS	38.0N 79.5W	37.2N 80.1W	33 NV	100 N Y 890809	12:52:59	161 90 27 17
79	82	USA-VA	APPALACHIAN MOUNTAINS	38.5N 79.8W	37.5N 79.8W	28 NV	100 N Y 890809	12:53:05	161 90 27 17
79	83	USA-VA	APPALACHIAN MOUNTAINS	38.5N 79.8W	37.9N 79.4W	18 NV	100 N Y 890809	12:53:14	161 91 27 17
151	128	USA-VA	APPALACHIAN MTHS.	37.0N 83.5W	34.8N 80.5W	40 NV	90 N Y 890809	12:52:53	161 89 26 17
151	129	USA-VA	APPALACHIAN MTHS.	38.0N 79.8W	38.3N 79.0W	35 NV	90 N Y 890809	12:53:22	161 91 28 17
78	9	USA-VT	VERMONT, NEW HAMPSHIRE	43.0N 72.5W	42.9N 73.1W	5 NV	250 N Y 890809	12:55:01	161 90 32 17
78	10	USA-VT	VERMONT, NEW HAMPSHIRE	43.0N 72.5W	43.0N 73.0W	5 NV	250 N Y 890809	12:55:04	161 90 32 17
78	11	USA-VT	VERMONT, NEW HAMPSHIRE	43.5N 72.5W	43.1N 72.8W	10 NV	250 N Y 890809	12:55:06	161 90 32 17
73	42	USA-WA	CENTRAL WASHINGTON	47.5N 119.0W	53.9N 125.9W	35 HO	250 N N 890811	20:54:34	162 181 51 54
74	72	USA-WA	MOUNT RAINIER	47.5N 121.5W	45.1N 106.5W	33 HO	250 N N 890811	14:43:18	161 94 26 50
74	73	USA-WA	CASCADE MOUNTAIN RANGE	49.0N 120.5W	45.2N 106.1W	40 HO	250 N N 890811	14:43:21	161 94 26 50
74	86	USA-WA	CASCADES, COASTLINE	46.5N 124.0W	44.3N 132.5W	50 LO	250 N N 890811	16:13:31	161 92 24 51
74	87	USA-WA	OLYMPIC PENINSULA	47.5N 123.0W	44.5N 132.2W	70 LO	250 N N 890811	16:13:36	161 93 25 51
74	89	USA-WA	OLYMPIC PENINSULA	47.5N 122.5W	45.3N 130.9W	78 LO	250 N N 890811	16:13:55	161 94 26 51
83	58	USA-WA	COLUMBIA RIVER	46.5N 117.5W	50.5N 115.7W	20 LO	100 N N 890811	20:52:33	162 209 52 54
87	11	USA-WA	COLUMBIA RIVER BASIN	46.5N 121.5W	48.3N 127.2W	50 LO	100 N N 890811	22:22:30	163 223 50 39
88	21	USA-WA	CASCADES, MOON	47.0N 120.0W	52.8N 137.4W	70 HO	250 N N 890810	22:20:39	162 205 51 39
88	22	USA-WA	CASCADES, MOON	47.0N 120.0W	52.1N 135.4W	60 HO	250 N N 890810	22:21:01	162 209 51 39
88	23	USA-WA	CASCADES, COLUMBIA BASIN	47.0N 121.0W	50.3N 130.6W	40 LO	250 N N 890810	22:21:56	163 217 50 39
88	24	USA-WA	CASCADES, COLUMBIA BASIN	47.5N 119.0W	49.6N 129.0W	38 LO	250 N N 890810	22:22:16	163 220 50 39
88	25	USA-WA	MOUNT RAINIER, SEATTLE	47.0N 122.5W	49.2N 128.1W	40 LO	250 N N 890810	22:22:27	163 222 50 39
88	26	USA-WA	MOUNT SAINT HELENS	46.0N 122.0W	48.2N 125.9W	18 LO	250 N N 890810	22:22:54	163 225 50 39
89	35	USA-WA	SPOKANE	47.5N 117.5W	47.0N 118.0W	50 NV	100 N N 890810	16:06:42	161 193 32 35
89	99	USA-WA	CASCADES	47.0N 121.0W	55.2N 123.9W	80 HO	100 N N 890810	20:48:27	162 199 50 38
89	100	USA-WA	COLUMBIA RIVER BASIN	46.5N 117.5W	51.0N 118.7W	70 HO	100 N N 890810	20:48:18	162 199 50 38
94	49	USA-WA	COLUMBIA R. YAKIMA VALLEY	46.0N 120.5W	50.8N 124.2W	60 HO	250 N N 890812	21:07:32	162 199 53 70
97	18	USA-WA	COLUMBIA BASIN, COLR.	47.5N 120.5W		40 HO	250 N N		
97	19	USA-WA	COLUMBIA BASIN, COLR.	47.5N 118.5W		40 HO	250 N N		
97	20	USA-WA	COLUMBIA BASIN, COLR.	47.0N 118.0W	52.4N 107.7W	40 HO	250 N N 890810	16:06:43	161 117 38 35
98	15	USA-WA	COLUMBIA R. MT. RAINIER	46.0N 121.5W	52.1N 127.5W	50 LO	250 N N 890809	22:12:29	162 217 49 23
98	16	USA-WA	COLUMBIA R. MT. ST. HELENS	46.0N 122.0W	51.5N 125.0W	50 LO	250 N N 890809	22:12:47	162 220 49 23
98	17	USA-WA	PUGET SOUND, WHIDBEY I.	48.0N 123.0W	50.3N 122.0W	65 LO	250 N N 890809	22:13:22	162 225 48 23
98	18	USA-WA	TACOMA MT. RAINIER	47.0N 122.0W	49.7N 121.4W	30 LO	250 N N 890809	22:13:39	163 227 48 23
98	19	USA-WA	COLUMBIA R. SNAKE R.	46.0N 119.5W	48.8N 119.4W	10 LO	250 N N 890809	22:14:04	163 230 48 23
98	20	USA-WA	SNAKE R. PALOUSE R.	47.0N 117.5W	48.3N 118.5W	25 LO	250 N N 890809	22:14:16	163 232 47 23
98	83	USA-WA	CASCADES, PUGET SOUND	48.5N 122.0W	50.9N 119.0W	50 HO	50 N N 890811	16:16:17	161 197 32 51
151	193	USA-WA	JUAN DE FUCA STR. CANADA	48.0N 124.0W	50.8N 127.6W	90 HO	90 N N 890809	17:38:02	161 116 39 20
151	240	USA-WA	COLUMBIA R. TACOMA	47.5N 122.0W		50 LO	90 N N		
151	241	USA-WA	COLUMBIA R. SNAKE R.	47.5N 119.5W		40 LO	90 N N		
153	29	USA-WA	COLUMBIA R. VALLEY, AGR.	47.5N 120.5W	51.3N 127.4W	50 HO	90 N N 890811	20:57:36	162 189 51 54
74	25	USA-WI	GREEN BAY, LAKE MICHIGAN	44.5N 88.0W	43.9N 87.1W	30 NV	250 N N 890811	13:12:19	161 92 25 49
74	26	USA-WI	LAKE MICHIGAN	45.0N 88.0W	44.3N 86.5W	18 NV	250 N Y 890811	13:12:28	161 93 25 49
74	27	USA-WI	LAKE MICHIGAN	45.0N 87.0W	44.6N 86.1W	20 NV	250 N Y 890811	13:12:34	161 93 25 49
78	38	USA-WI	SUPERIOR, DULUTH, MINN.	46.5N 92.0W	45.1N 92.9W	30 NV	250 N N 890809	14:26:30	161 102 34 18
81	77	USA-WI	LAKE SUPERIOR	46.5N 92.0W	47.4N 93.7W	80 LO	100 N N 890809	20:44:19	163 236 47 22
81	78	USA-WI	LAKE MICHIGAN	45.9N 86.5W	45.6N 90.6W	80 LO	100 N N 890809	20:45:02	163 241 46 22
82	64	USA-WI	MADISON	43.0N 89.5W	44.5N 88.8W	80 NV	250 N N 890809	20:45:16	163 244 45 22
87	104	USA-WI	ILLINOIS BORDER	42.5N 89.0W	42.7N 88.9W	20 NV	100 U N 890811	13:11:56	161 90 23 49
87	105	USA-WI	LAKE MICHIGAN	42.5N 88.0W	43.2N 88.2W	20 NV	100 U N 890811	13:12:06	161 91 24 49
96	91	USA-WI	L. MI. L. SUP. GREEN BAY	45.0N 87.0W	50.2N 90.8W	30 HO	250 N N 890810	14:37:05	161 110 35 34
100	71	USA-WI	GREEN BAY, MENOMONEE/R	45.0N 87.5W	45.5N 90.5W	45 LO	250 N N 890812	19:39:12	163 220 54 69
100	72	USA-WI	GREEN BAY, ESCANABA	46.0N 87.0W	45.3N 90.2W	30 LO	250 N N 890812	19:39:16	163 221 54 69
151	158	USA-WI	MS. R. ST. PAUL/MINN.	46.0N 91.0W	43.4N 93.5W	50 HO	90 N N 890809	14:25:51	161 99 32 18
151	222	USA-WI	KEEWEENAW PEN. DULUTH	46.5N 90.5W		80 LO	90 N N		
151	223	USA-WI	MS. R. WAUSAU, AGR.	45.5N 90.5W		80 LO	90 N N		
152	167	USA-WI	MS. R. WI. R. AGR.	43.0N 90.5W	42.0N 92.9W	60 LO	250 N N 890810	20:54:36	163 244 47 38
153	0 K	USA-WI	GREEN BAY, AGR.	44.5N 87.5W		50 LO	250 N N		
153	0 Q	USA-WI	RACINE, MILWAUKEE, L.M.	43.5N 88.5W		70 LO	250 N N		
153	0 R	USA-WI	RACINE, KENOSHA, WAUKEGON	43.0N 88.0W		50 LO	250 N N		
153	0 S	USA-WI	MILWAUKEE, RACINE, L.M.	43.5N 88.5W		60 LO	250 N N		

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
153	0 T	USA-WI	GREEN BAY, L. WINNEBAGO	44.0N 88.5W		60 LO	250 N N			
153	0 U	USA-WI	GREEN BAY, AGR.	44.5N 88.5W		50 LO	250 N N			
153	0 V	USA-WI	GREEN BAY, MARINETTE	44.5N 88.0W		40 LO	250 N N			
153	0 W	USA-WI	GREEN BAY, MARINETTE AGR	45.0N 88.5W		30 LO	250 N N			
153	0 X	USA-WI	MENOMINEE R. MARINETTE	45.5N 88.0W		25 LO	250 N N			
153	22	USA-WI	LML EDDIES, INT. WAVES	44.0N 88.0W	46.4N 84.4W	75 HO	90 N N	890811	19:30:39	163 223 52 53
153	74 V	USA-WI	GR. LAKES PANORAMA, SGLT	45.0N 80.0W		50 HO	90 N N			
81	83	USA-WV	OHIO RIVER	39.0N 81.5W	38.1N 80.4W	30 NV	100 H Y	890809	20:47:48	163 257 41 22
81	84	USA-WV	OHIO RIVER	38.0N 82.5W	38.0N 80.3W	40 NV	100 N Y	890809	20:47:51	163 258 41 22
90	2	USA-WV	OHIO RIVER	39.0N 82.0W	38.0N 80.5W	80 LO	250 N N	890812	19:42:09	163 242 52 69
90	3	USA-WV	CLARKSBURG	39.0N 80.5W	37.1N 80.3W	50 NV	250 N N	890812	19:42:12	163 242 52 69
90	4	USA-WV	WHITE SULPHUR SPRINGS	37.5N 82.5W	37.5N 79.9W	80 NV	250 N H	890812	19:42:19	163 243 52 69
151	232	USA-WY	OHIO R. NEW R. AGR.	38.5N 82.0W		50 LO	90 N Y			
98	24	USA-WY	YELLOWSTONE LAKE	44.5N 110.5W	45.7N 113.7W	80 LO	250 N N	890809	22:15:22	163 246 46 23
98	25	USA-WY	SHOSHONE BASIN, OCEAN L.	43.0N 100.5W	45.2N 112.9W	50 LO	250 N N	890809	22:15:34	163 242 46 23
98	27	USA-WY	GR. PLAINS STORM FRONT		42.9N 109.5W	75 LO	250 N N	890809	22:16:26	163 247 44 23
98	28	USA-WY	GR. PLAINS STORM FRONT		41.8N 106.8W	75 LO	250 N N	890809	22:17:18	163 252 43 23
151	242	USA-WY	SNAKE R. BASIN, BEAR L.	43.0N 100.0W		80 HO	90 N N			
153	4	USA-WY	BEAR LAKEUT.	41.5N 111.5W	44.2N 109.3W	90 HO	90 N N	890811	14:43:11	161 92 25 50
153	5	USA-WY	BEAR LAKEUT.	42.5N 110.5W	44.9N 106.6W	90 HO	90 N N	890811	14:43:29	161 94 25 50
83	88	USSR	CLOUDS		54.5N 58.8E	70 LO	100 N N	890812	07:29:01	161 165 48 61
84	87	USSR	CLOUDS		57.1N 60.6E	70 LO	100 N N	890813	06:04:37	161 149 42 76
74	1	USSR-EUROPEAN	BLACK SEA	46.5N 31.5E	46.0N 31.2E	0 NV	250 N N	890811	11:58:17	163 228 51 48
74	2	USSR-EUROPEAN	NIKOLAYEV	47.0N 32.0E	45.3N 32.3E	5 NV	250 N N	890811	11:58:34	163 231 50 48
74	3	USSR-EUROPEAN	KHERSON, DNEPR RIVER	46.5N 32.5E	45.2N 32.6E	0 NV	250 N N	890811	11:58:38	163 231 50 48
74	4	USSR-EUROPEAN	BLACK SEA	46.0N 33.5E	45.0N 32.9E	5 NV	250 N N	890811	11:58:43	163 232 50 48
74	5	USSR-EUROPEAN	BLACK SEA	45.5N 33.0E	44.8N 33.2E	5 NV	250 N N	890811	11:58:47	163 232 50 48
74	6	USSR-EUROPEAN	BLACK SEA	44.5N 33.5E	44.7N 33.4E	20 NV	250 N Y	890811	11:58:50	163 233 50 48
74	7	USSR-EUROPEAN	BLACK SEA	44.5N 33.5E	44.4N 33.9E	5 NV	250 N Y	890811	11:58:57	163 234 50 48
74	8	USSR-EUROPEAN	BLACK SEA	45.0N 34.5E	43.6N 35.0E	20 NV	250 N N	890811	11:59:15	163 236 50 48
74	9	USSR-EUROPEAN	BLACK SEA COASTLINE	43.5N 40.5E	40.5N 39.5E	70 LO	250 N N	890811	12:00:21	163 244 43 48
74	10	USSR-EUROPEAN	BLACK SEA COASTLINE	43.0N 41.5E	40.1N 39.7E	60 LO	250 N N	890811	12:00:31	163 245 48 48
74	11	USSR-EUROPEAN	CAUCASUS MOUNTAINS	43.0N 42.5E	40.0N 39.8E	70 LO	250 N N	890811	12:00:34	163 245 48 48
75	21	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.0N 43.0E	57.1N 42.6E	80 NV	100 N H	890809	08:32:04	161 163 48 14
75	22	USSR-EUROPEAN	VOLGA RIVER	54.5N 48.5E	57.1N 47.4E	80 LO	100 N N	890809	08:32:52	162 172 49 14
75	23	USSR-EUROPEAN	VOLGA RIVER	54.5N 48.5E	57.1N 48.4E	80 LO	100 N N	890809	08:32:58	162 173 68 14
75	46	USSR-EUROPEAN	CLOUDS, AGRICULTURE		51.7N 57.4E	80	100 N N	890809	10:06:31	163 223 48 15
76	75	USSR-EUROPEAN	MOSCOW	56.0N 38.5E	56.0N 37.5E	70 NV	250 N N	890809	08:31:18	161 157 47 14
76	76	USSR-EUROPEAN	MOSCOW, RAMENSKOYE AAPT.	56.0N 38.0E	56.0N 38.3E	70 NV	250 N N	890809	08:31:25	161 158 48 14
76	77	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.5N 43.5E	57.1N 42.1E	60 NV	250 N Y	890809	08:31:58	161 164 48 14
76	78	USSR-EUROPEAN	GORKOSKOYE RESERVOIR	57.5N 43.5E	57.1N 43.2E	60 NV	250 N Y	890809	08:32:07	161 165 48 14
76	79	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 50.0E	57.1N 48.4E	60 NV	250 N Y	890809	08:32:52	162 173 49 14
76	80	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 50.5E	57.1N 48.7E	60 NV	250 N Y	890809	08:32:54	162 173 49 14
76	81	USSR-EUROPEAN	KUYBYSHEVSKOYE RESERVOIR	55.5N 51.5E	57.1N 49.1E	80 NV	250 N Y	890809	08:32:58	162 174 49 14
77	1	USSR-EUROPEAN	AGRICULTURE, CLOUDS		53.0N 53.5E	70 LO	250 N N	890809	10:07:41	162 216 48 15
77	2	USSR-EUROPEAN	AGRICULTURE, CLOUDS		52.2N 54.0E	80 LO	250 N N	890809	10:08:08	162 220 48 15
77	3	USSR-EUROPEAN	AGRICULTURE, CLOUDS		51.6N 57.4E	80 LO	250 N N	890809	10:08:28	163 223 48 15
77	62	USSR-EUROPEAN	CASPIAN SEA-EAST COAST	43.5N 51.5E	46.3N 45.4E	30 LO	250 N N	890809	11:41:11	163 248 45 16
77	61	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.6N 53.0E	45.8N 47.1E	30 LO	250 N N	890809	11:41:36	163 243 45 16
77	62	USSR-EUROPEAN	BARSAKEL MES SALT FLAT	43.0N 58.0E	42.0N 52.7E	10 LO	250 N N	890809	11:42:02	163 252 42 16
77	63	USSR-EUROPEAN	BARSAKEL MES SALT FLAT	43.0N 58.0E	41.3N 53.6E	10 LO	250 N N	890809	11:43:17	164 253 42 16
77	64	USSR-EUROPEAN	BARSAKEL MES SALT FLAT	43.5N 58.0E	40.9N 54.7E	30 LO	250 N N	890809	11:43:27	164 254 41 16
77	65	USSR-EUROPEAN	LAKE SARYKAMYSHSKOYE	41.5N 57.5E	40.4N 54.9E	0 LO	250 N N	890809	11:43:38	164 255 41 16
77	66	USSR-EUROPEAN	ARAL SEA, CLOUDS	43.5N 59.5E	39.6N 55.8E	70 LO	250 N N	890809	11:43:55	164 256 40 16
79	8	USSR-EUROPEAN	AGRICULTURE, CLOUDS		53.1N 50.2E	90	100 N N	890809	11:38:52	162 215 49 16
79	9	USSR-EUROPEAN	AGRICULTURE, CLOUDS		52.7N 51.5E	90	100 N N	890809	11:39:16	162 217 49 16
79	10	USSR-EUROPEAN	SEA OF AZOV	47.5N 35.5E	49.6N 39.7E	80 LO	100 N N	890809	11:39:50	163 231 47 16
79	11	USSR-EUROPEAN	TAGANROGSKOY BAY	47.0N 38.5E	49.1N 40.9E	80 LO	100 N N	890809	11:40:05	163 232 47 16
79	12	USSR-EUROPEAN	TAGANROGSKOY BAY	47.0N 39.0E	48.5N 42.1E	80 LO	100 N N	890809	11:40:21	163 235 46 16
79	13	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	42.0N 45.5E	45.8N 47.1E	80 LO	100 N N	890809	11:41:28	163 243 45 16
79	14	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	42.0N 46.0E	45.7N 47.3E	80 LO	100 N N	890809	11:41:31	163 243 44 16
79	15	USSR-EUROPEAN	LAKE SEVAN, CAUCASUS MTS.	41.5N 46.5E	45.5N 47.5E	80 LO	100 N N	890809	11:41:35	163 243 44 16
79	16	USSR-EUROPEAN	CASPIAN SEA	44.5N 47.5E	44.8N 48.7E	50 NV	100 N Y	890809	11:41:52	163 245 44 16
79	17	USSR-EUROPEAN	CASPIAN SEA	44.0N 47.5E	44.6N 49.0E	50 NV	100 H Y	890809	11:41:56	163 246 44 16
79	18	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.0E	42.5N 52.1E	10 NV	100 N Y	890809	11:42:45	163 251 42 16
79	19	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	42.5N 53.0E	42.4N 52.2E	20 NV	100 N Y	890809	11:42:47	163 251 42 16
79	20	USSR-EUROPEAN	KAZAKHSKIY BAY	42.5N 52.5E	42.2N 52.5E	20 NV	100 N Y	890809	11:42:51	163 251 42 16
79	21	USSR-EUROPEAN	KAZAKHSKIY BAY	43.0N 52.0E	42.1N 52.7E	20 NV	100 N Y	890809	11:42:54	163 252 42 16
79	22	USSR-EUROPEAN	CASPIAN SEA COASTLINE	43.5N 51.5E	41.9N 52.9E	30 NV	100 H Y	890809	11:42:58	163 252 42 16
79	23	USSR-EUROPEAN	KOPETDAG MOUNTAINS, IRAN	38.5N 56.0E	40.3N 54.8E	5 LO	100 N N	890809	11:43:32	164 255 41 16



**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	SUN AL AZ EL OR
79	24	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 55.5E	40.1N 55.2E	0 NV	100 N Y 890809	11:43:37	164 253 41 16
79	25	USSR-EUROPEAN	BOLSHOY BALKHAN	39.5N 55.0E	40.0N 55.4E	5 NV	100 N Y 890809	11:43:40	164 254 41 16
79	26	USSR-EUROPEAN	UZBOY RIVER	39.5N 55.5E	39.8N 55.5E	5 HV	100 N Y 890809	11:43:43	164 254 40 16
79	27	USSR-EUROPEAN	UZBOY RIVER	40.0N 54.5E	39.7N 55.7E	5 NV	100 N Y 890809	11:43:35	164 254 40 16
79	28	USSR-EUROPEAN	UZBOY RIVER	40.5N 57.0E	39.6N 55.8E	0 NV	100 N Y 890809	11:43:48	164 254 40 16
79	29	USSR-EUROPEAN	UZBOY RIVER	39.5N 57.0E	39.6N 56.0E	0 HV	100 N Y 890809	11:43:52	164 257 40 16
79	30	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 57.0E	39.2N 56.2E	0 NV	100 N Y 890809	11:43:55	164 257 40 16
79	31	USSR-EUROPEAN	KOPETDAG MOUNTAINS	39.0N 57.0E	39.1N 56.4E	0 NV	100 N Y 890809	11:43:58	164 257 40 16
79	32	USSR-EUROPEAN	KOPETDAG MOUNTAINS, IRAN	38.5N 57.0E	38.8N 56.7E	5 NV	100 N Y 890809	11:44:04	164 258 40 16
80	5	USSR-EUROPEAN	LATVIA, GULF OF RIGA	57.5N 22.5E	57.0N 21.1E	80 NV	100 N N 890810	10:12:31	162 170 48 31
80	6	USSR-EUROPEAN	VOLGA RIVER	53.0N 48.0E	52.1N 49.7E	80 HV	100 N Y 890810	10:16:52	162 213 50 31
80	7	USSR-EUROPEAN	VOLGA RIVER	52.5N 48.0E	51.8N 49.5E	80 HV	100 N Y 890810	10:17:01	162 215 50 31
80	8	USSR-EUROPEAN	VOLGA RIVER	52.0N 47.5E	51.7N 49.8E	80 HV	100 N Y 890810	10:17:05	162 215 50 31
80	9	USSR-EUROPEAN	VOLGA RIVER	51.5N 46.5E	51.5N 50.2E	00 LO	100 N N 890810	10:17:09	162 216 50 31
80	10	USSR-EUROPEAN	URAL RIVER, LAKE SHALKAR	50.5N 51.5E	50.9N 51.8E	00 NV	100 N Y 890810	10:17:20	162 219 50 31
80	11	USSR-EUROPEAN	URAL RIVER, LAKE SHALKAR	49.5N 51.5E	50.6N 52.5E	70 NV	100 N Y 890810	10:17:34	162 220 49 31
80	12	USSR-EUROPEAN	CLOUDS	49.5N 49.5E	50.3N 53.4E	80 LO	100 N N 890810	10:17:46	163 221 49 31
80	14	USSR-EUROPEAN	ARAL SEA	45.5N 50.0E	46.5N 61.0E	70 NV	100 N Y 890810	10:18:25	163 234 48 31
80	59	USSR-EUROPEAN	DNEPR RIVER	47.5N 34.5E	49.2N 32.8E	60 LO	100 N N 890810	11:48:47	163 225 49 32
80	68	USSR-EUROPEAN	SEA OF AZOV	46.0N 35.0E	47.7N 35.8E	40 LO	100 N N 890810	11:49:26	163 230 49 32
80	61	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 36.5E	47.3N 36.6E	40 LO	100 N N 890810	11:49:37	163 232 48 32
80	62	USSR-EUROPEAN	SEA OF AZOV	46.5N 38.0E	47.0N 37.3E	30 HV	100 N Y 890810	11:49:46	163 233 48 32
80	63	USSR-EUROPEAN	SEA OF AZOV	47.0N 37.5E	46.7N 37.7E	30 HV	100 N Y 890810	11:49:52	163 233 48 32
80	64	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 36.5E	46.3N 38.4E	20 LO	100 N N 890810	11:50:01	163 235 48 32
80	65	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.0N 37.0E	45.8N 39.3E	30 LO	100 N N 890810	11:50:14	163 236 48 32
80	66	USSR-EUROPEAN	BLACK SEA	43.5N 40.5E	44.0N 41.6E	50 NV	100 N Y 890810	11:50:39	163 239 47 32
80	67	USSR-EUROPEAN	BLACK SEA	43.0N 41.0E	44.6N 41.3E	40 NV	100 N Y 890810	11:50:43	163 240 47 32
80	68	USSR-EUROPEAN	BLACK SEA	43.0N 41.5E	44.4N 41.5E	40 NV	100 N Y 890810	11:50:47	163 240 47 32
80	69	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.5N 43.0E	43.8N 42.4E	20 HV	100 N Y 890810	11:51:00	163 242 47 32
80	70	USSR-EUROPEAN	BLACK SEA	42.0N 42.0E	43.1N 43.4E	10 LO	100 N N 890810	11:51:16	163 243 46 32
80	71	USSR-EUROPEAN	BLACK SEA	41.5N 42.5E	43.0N 43.6E	20 LO	100 N N 890810	11:51:28	163 244 46 32
80	72	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.5N 44.0E	42.7N 44.1E	30 HV	100 N Y 890810	11:51:27	163 245 46 32
80	73	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 44.5E	42.5N 44.3E	40 NV	100 N Y 890810	11:51:34	163 245 46 32
80	74	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 45.5E	42.4N 44.5E	50 NV	100 N Y 890810	11:51:53	163 245 46 32
80	75	USSR-EUROPEAN	CAUCASUS MOUNTAINS	41.0N 46.0E	40.7N 46.7E	40 NV	100 N Y 890810	11:52:11	163 249 45 32
80	76	USSR-EUROPEAN	KURA RIVER	41.5N 46.5E	42.6N 46.4E	50 NV	100 N Y 890810	11:52:13	163 249 45 32
80	77	USSR-EUROPEAN	LAKE SEVAN	40.5N 46.0E	42.4E 47.6E	50 NV	100 N Y 890810	11:52:16	163 250 45 32
80	78	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.5E	42.2N 47.2E	40 NV	100 N Y 890810	11:52:19	163 250 45 32
80	79	USSR-EUROPEAN	KURA RIVER	41.5N 48.0E	39.9N 47.6E	70 NV	100 N Y 890810	11:52:27	163 251 44 32
80	80	USSR-EUROPEAN	CASPIAN SEA, CAUCASUS MT.	41.0N 48.0E	39.2N 47.8E	70 NV	100 N Y 890810	11:52:30	163 251 44 32
80	81	USSR-EUROPEAN	BAKU, CASPIAN SEA	40.0N 49.5E	39.3N 48.4E	30 NV	100 N N 890810	11:52:40	164 252 44 32
80	82	USSR-EUROPEAN	CASPIAN SEA	39.0N 49.0E	38.8N 49.0E	50 NV	100 N N 890810	11:52:51	164 253 44 32
84	3	USSR-EUROPEAN	TSIMLYANSKOYE RESERVOIR	48.0N 43.0E	49.0N 43.0E	40 LO	100 N N 890812	10:34:40	162 210 53 63
84	4	USSR-EUROPEAN	CASPIAN SEA	44.5N 51.5E	45.1N 48.0E	5 LO	100 N N 890812	10:36:27	163 224 53 63
84	5	USSR-EUROPEAN	CASPIAN SEA	43.5N 51.5E	44.8N 48.5E	20 LO	100 N N 890812	10:36:35	163 225 53 63
84	6	USSR-EUROPEAN	CASPIAN SEA	43.0N 52.5E	43.8N 50.0E	20 LO	100 N N 890812	10:36:58	163 229 53 63
84	7	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E	43.2N 50.9E	20 LO	100 N N 890812	10:37:12	163 230 53 63
84	8	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	42.5N 54.5E	42.9N 51.3E	10 LO	100 N N 890812	10:37:18	163 231 52 63
84	9	USSR-EUROPEAN	CASPIAN SEA	42.0N 53.5E	42.2N 52.2E	5 LO	100 N N 890812	10:37:33	163 233 52 63
84	10	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	40.5N 55.0E	41.9N 52.4E	5 LO	100 N N 890812	10:37:39	163 234 52 63
84	11	USSR-EUROPEAN	UZBOY RIVER	39.5N 55.5E	41.0N 53.9E	20 LO	100 N N 890812	10:38:00	163 236 52 63
84	12	USSR-EUROPEAN	ARAL SEA	42.5N 59.5E	49.2N 54.8E	40 HO	100 N N 890812	10:38:16	163 238 52 63
84	22	USSR-EUROPEAN	GORKUY, VOLGA RIVER	56.0N 44.0E	55.0N 39.7E	10 LO	100 N N 890813	06:01:32	160 115 34 76
84	23	USSR-EUROPEAN	GORKUY, VOLGA RIVER	56.0N 44.0E	55.2N 41.0E	5 LO	100 N N 890813	06:01:44	160 116 34 76
84	24	USSR-EUROPEAN	VOLGA RIVER	56.0N 46.0E	55.4N 41.7E	20 LO	100 N N 890813	06:01:51	160 117 35 76
84	25	USSR-EUROPEAN	VOLGA RIVER	55.0N 47.0E	55.9N 44.7E	40 LO	100 N N 890813	06:02:18	160 121 34 76
84	26	USSR-EUROPEAN	VOLGA RIVER	56.5N 49.0E	56.0N 45.2E	50 LO	100 N N 890813	06:02:23	160 121 34 76
87	25	USSR-EUROPEAN	KAMA RIVER	56.5N 53.0E	57.0N 49.1E	20 LO	100 N N 890813	07:18:15	161 148 45 45
87	26	USSR-EUROPEAN	KAMA RIVER	56.0N 54.5E	57.1N 51.1E	40 LO	100 N N 890813	07:18:32	161 151 45 45
87	27	USSR-EUROPEAN	KAMA RIVER	57.0N 56.0E	57.1N 52.4E	50 LO	100 N N 890813	07:18:43	161 153 46 45
87	28	USSR-EUROPEAN	KAMA RIVER	58.0N 56.5E	57.2N 53.8E	50 LO	100 N N 890813	07:18:55	161 155 46 45
87	45	USSR-EUROPEAN	KAMA RIVER	56.5N 54.5E	55.1N 52.4E	30 LO	100 N N 890813	08:52:37	162 186 50 46
87	46	USSR-EUROPEAN	KAMA RIVER	56.0N 54.0E	55.0N 53.2E	20 HV	100 N N 890813	08:52:44	162 188 50 46
87	58	USSR-EUROPEAN	VOLGA RIVER	48.5N 44.0E	49.6N 47.1E	30 LO	100 N N 890813	10:26:17	163 216 51 47
87	59	USSR-EUROPEAN	CASPIAN SEA	47.0N 51.5E	45.6N 54.9E	5 LO	100 N N 890813	10:28:01	163 230 50 47
87	60	USSR-EUROPEAN	VOLGA RIVER DELTA	46.0N 49.0E	45.0N 55.0E	20 HO	100 N N 890813	10:28:15	163 232 50 47
87	61	USSR-EUROPEAN	CASPIAN SEA	45.5N 53.0E	44.6N 56.5E	0 LO	100 N N 890813	10:28:24	163 233 50 47
87	62	USSR-EUROPEAN	SOR BARSAKEL MES	44.0N 37.5E	42.6N 59.4E	10 LO	100 N N 890813	10:29:09	163 239 49 47
87	63	USSR-EUROPEAN	SOR BARSAKEL MES	43.5N 57.0E	42.4N 59.7E	5 LO	100 N N 890813	10:29:14	163 239 40 47
87	64	USSR-EUROPEAN	CASPIAN SEA	42.5N 56.5E	42.1N 60.0E	5 LO	100 N N 890813	10:29:20	163 240 46 47



**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	AL	AZ	EL	OR
87	65	USSR-EUROPEAN	LAKE SARYKAMYSKSKOYE	42.5N 58.8E	48.9N 61.7E	48	LO	100	N	N	890811	10:28:48	163	243	48	47
87	66	USSR-EUROPEAN	AMU RIVER, ARAL SEA	42.5N 59.5E	39.9N 62.9E	68	LO	100	N	N	890811	10:36:09	163	246	48	47
87	82	USSR-EUROPEAN	BLACK SEA, ODESSA	46.5N 30.5E	46.6N 30.2E	20	HV	100	N	Y	890811	11:58:08	163	227	51	48
87	93	USSR-EUROPEAN	BLACK SEA	46.5N 32.0E	46.5N 30.4E	10	HV	100	N	Y	890811	11:58:11	163	227	51	48
87	94	USSR-EUROPEAN	SEA OF AZOV	46.0N 35.0E	43.9N 34.6E	30	LO	100	N	Y	890811	11:58:12	163	235	50	48
87	95	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.5N 35.5E	43.7N 34.8E	38	NV	100	N	Y	890811	11:58:15	163	235	50	48
87	96	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	45.8N 36.5E	43.5N 35.2E	38	NV	100	N	Y	890811	11:58:21	163	236	50	48
87	97	USSR-EUROPEAN	CARNEAN PENINSULA	46.0N 34.5E	42.9N 36.1E	58	LO	100	N	N	890812	11:58:35	163	238	50	48
87	98	USSR-EUROPEAN	CAUCASUS MOUNTAINS	44.8N 41.0E	42.2N 37.0E	68	LO	100	N	N	890811	11:58:50	163	240	49	48
87	99	USSR-EUROPEAN	CAUCASUS MOUNTAINS	42.0N 46.0E	41.9N 37.4E	78	HO	100	N	N	890811	11:58:56	163	240	49	48
88	50	USSR-EUROPEAN	SNOKESTACK	52.5N 25.0E	51.8N 20.6E	50	LO	250	N	N	890811	07:13:53	161	111	35	45
88	51	USSR-EUROPEAN	SNOKESTACK	52.5N 25.0E	53.0N 24.3E	10	NV	250	N	N	890811	07:14:33	161	116	37	45
88	52	USSR-EUROPEAN	AGRICULTURE	53.8N 27.2E	53.8N 27.2E	5	LO	250	N	N	890811	07:15:03	161	120	38	45
88	53	USSR-EUROPEAN	KAMA RIVER	56.8N 52.0E	57.1N 51.9E	18	NV	250	N	Y	890811	07:18:47	161	152	46	45
88	54	USSR-EUROPEAN	KAMA RIVER	56.8N 53.0E	57.1N 52.2E	5	NV	250	N	Y	890811	07:18:49	161	153	46	45
88	55	USSR-EUROPEAN	KAMA RIVER	56.8N 53.5E	57.1N 52.5E	5	NV	250	N	Y	890811	07:18:52	161	153	46	45
88	56	USSR-EUROPEAN	KAMA RIVER	56.0N 54.0E	57.1N 52.9E	5	NV	250	N	Y	890811	07:18:55	161	154	46	45
88	57	USSR-EUROPEAN	KAMA RIVER	56.5N 54.8E	57.2N 53.6E	5	NV	250	N	Y	890811	07:19:01	161	155	46	45
88	58	USSR-EUROPEAN	KAMA RIVER	56.5N 54.0E	57.2N 53.9E	5	NV	250	N	Y	890811	07:19:04	161	155	46	45
88	59	USSR-EUROPEAN	KAMA RIVER	57.8N 54.5E	57.2N 54.3E	5	NV	250	N	Y	890811	07:19:07	161	155	46	45
88	60	USSR-EUROPEAN	KAMA RIVER	57.8N 55.0E	57.2N 54.6E	5	NV	250	N	Y	890811	07:19:10	161	156	46	45
88	61	USSR-EUROPEAN	KAMA RIVER	57.8N 54.5E	57.1N 55.7E	5	NV	250	N	Y	890812	07:19:10	161	157	47	45
88	62	USSR-EUROPEAN	KAMA RIVER	57.5N 55.0E	57.1N 56.1E	5	NV	250	N	Y	890812	07:19:23	161	158	47	45
88	63	USSR-EUROPEAN	KAMA RIVER	57.5N 55.5E	57.1N 57.0E	5	NV	250	N	Y	890811	07:19:30	161	159	47	45
88	64	USSR-EUROPEAN	KAMA RIVER	58.8N 55.5E	57.1N 57.3E	5	NV	250	N	Y	890811	07:19:33	161	160	47	45
88	65	USSR-EUROPEAN	KAMA RIVER	58.5N 56.0E	57.1N 57.8E	18	NV	250	N	Y	890811	07:19:37	161	160	47	45
88	66	USSR-EUROPEAN	KAMA RIVER	59.0N 56.5E	57.1N 58.1E	20	NV	250	N	Y	890811	07:19:40	161	161	47	45
90	64	USSR-EUROPEAN	MOSCOW	55.5N 38.5E	55.4N 41.7E	5	LO	250	N	N	890813	06:01:55	160	117	35	76
90	65	USSR-EUROPEAN	MOSCOW	55.5N 38.5E	55.4N 42.1E	5	LO	250	N	N	890813	06:01:58	160	118	35	76
90	66	USSR-EUROPEAN	GORKY	56.8N 43.5E	55.8N 44.6E	0	NV	250	N	N	890813	06:02:21	160	121	36	76
90	67	USSR-EUROPEAN	VOLGA RIVER	56.8N 47.0E	56.0N 45.7E	10	NV	250	N	N	890813	06:02:31	160	122	36	76
90	68	USSR-EUROPEAN	LITHJANA		56.1N 23.4E	5		250	N	N	890813	07:33:07	160	122	37	77
90	69	USSR-EUROPEAN	VOLGA RIVER	56.8N 48.0E	56.5E	60	LO	250	N	N	890813	07:37:00	161	156	46	77
90	70	USSR-EUROPEAN	VOLGA RIVER	56.8N 48.0E	56.5N 51.2E	60	LO	250	N	N	890813	07:37:08	161	158	47	77
90	71	USSR-EUROPEAN	VOLGA RIVER	56.8N 48.5E	56.4N 51.6E	80	LO	250	N	N	890813	07:37:11	161	158	47	77
90	72	USSR-EUROPEAN	VOLGA RIVER	55.5N 49.0E	56.4N 51.8E	80	LO	250	N	N	890813	07:37:13	161	158	47	77
90	73	USSR-EUROPEAN	VOLGA RIVER	56.8N 47.5E	56.4N 52.3E	70	LO	250	N	N	890813	07:37:18	161	159	47	77
90	74	USSR-EUROPEAN	KUTBYSHEVSKOYE RESERVOIR	55.8N 49.5E	56.1N 54.2E	70	LO	250	N	N	890813	07:37:35	161	162	48	77
90	75	USSR-EUROPEAN	AGRICULTURE, MOUNTAINS	55.5N 58.3E	55.5N 58.3E	30		250	N	N	890813	07:38:12	161	168	49	77
91	8	USSR-EUROPEAN	LIEPAJA	56.5N 21.0E	57.1N 23.5E	30	NV	250	N	Y	890813	09:04:26	161	167	44	78
91	9	USSR-EUROPEAN	ARAL SEA	46.8N 59.5E	46.3N 61.3E	48	LO	250	N	N	890813	09:13:28	162	212	55	78
91	14	USSR-EUROPEAN	ARAL SEA	46.8N 59.5E	45.6N 62.5E	38	LO	250	N	N	890813	09:13:46	162	215	55	78
91	15	USSR-EUROPEAN	SURA RIVER	53.5N 45.0E	53.3N 44.8E	80	NV	100	N	N	890810	10:16:05	162	207	50	31
91	16	USSR-EUROPEAN	VOLGA R. KUTBYSHEV RES.	53.5N 49.8E	53.8N 45.6E	80	LO	100	N	N	890810	10:16:14	162	208	50	31
91	17	USSR-EUROPEAN	VOLGA R. SARATOV RES.	52.5N 48.5E	52.8N 46.2E	78	LO	100	N	N	890810	10:16:20	162	209	50	31
91	18	USSR-EUROPEAN	VOLGA R. SARATOV RES.	52.5N 48.0E	52.7N 46.6E	78	LO	100	N	N	890810	10:16:25	162	210	50	31
91	19	USSR-EUROPEAN	VOLGA RIVER	51.5N 47.0E	52.4N 47.1E	80	NV	100	N	N	890810	10:16:30	162	211	50	31
91	20	USSR-EUROPEAN	URAL R. L. SHALKAR	50.5N 51.5E	52.2N 48.3E	70	LO	100	N	N	890810	10:16:43	162	213	50	31
91	21	USSR-EUROPEAN	URAL R. L. SHALKAR	50.5N 51.6E	51.8N 49.5E	70	LO	100	N	N	890810	10:16:56	162	215	50	31
91	22	USSR-EUROPEAN	USTYURT DES. FLOOD	45.5N 55.0E	49.2N 55.7E	50	LO	100	N	Y	890810	10:18:10	163	225	49	31
91	23	USSR-EUROPEAN	USTYURT DES. FLOOD	45.5N 55.0E	48.8N 56.7E	50	LO	100	N	Y	890810	10:18:22	163	227	49	31
91	24	USSR-EUROPEAN	ARAL SEA	45.8N 59.5E	47.8N 58.7E	60	LO	100	N	N	890810	10:18:48	163	230	48	31
91	25	USSR-EUROPEAN	ARAL SEA	45.8N 59.5E	47.5N 59.2E	60	LO	100	N	Y	890810	10:18:55	163	231	48	31
91	26	USSR-EUROPEAN	ARAL SEA	45.8N 59.5E	47.4N 59.4E	60	LO	100	N	Y	890810	10:18:57	163	232	48	31
94	4	USSR-EUROPEAN	DNEPR R. AGR. SWAMP	52.8N 30.0E	53.2N 29.5E	15	LO	250	N	N	890812	10:32:42	162	190	52	63
94	5	USSR-EUROPEAN	GOMEL, DNEPR R. AGR.	52.5N 31.0E	53.0N 30.2E	10	LO	250	N	N	890812	10:32:49	162	191	52	63
94	6	USSR-EUROPEAN	AGR. PLAINS	53.8N 31.5E	52.8N 31.1E	20	LO	250	N	N	890812	10:32:58	162	193	52	63
94	7	USSR-EUROPEAN	AGR. PLAINS	53.8N 31.5E	52.6N 31.7E	40	LO	250	N	N	890812	10:33:05	162	194	52	63
94	8	USSR-EUROPEAN	AGR. PLAINS	53.8N 31.5E	52.4N 32.3E	60	LO	250	N	N	890812	10:33:11	162	195	52	63
94	9	USSR-EUROPEAN	IRRIG. AGR. CANALS	50.5N 43.8E	48.7N 41.5E	40	LO	250	N	N	890812	10:33:10	162	211	53	63
94	10	USSR-EUROPEAN	IRRIG. AGR. CANALS	51.8N 43.8E	48.6N 41.7E	30	LO	250	N	N	890812	10:33:03	162	212	53	63
94	11	USSR-EUROPEAN	YELAH IRRIG. AGR. CANALS	51.8N 43.5E	48.3N 42.4E	25	LO	250	N	N	890812	10:33:11	163	213	53	63
94	12	USSR-EUROPEAN	DON R. MEDVEDITSA R.	49.5N 43.0E	48.6N 42.9E	48	LO	250	N	N	890812	10:33:18	163	216	53	63
94	13	USSR-EUROPEAN	DON RIVER	49.0N 44.0E	47.5N 43.8E	38	LO	250	N	N	890812	10:33:30	163	216	53	63
94	14	USSR-EUROPEAN	DON RIVER	49.0N 43.5E	47.3N 44.2E	25	LO	250	N	N	890812	10:33:35	163	217	53	63
94	15	USSR-EUROPEAN	VOLZHSKIY, VOLGOGRAD RES.	49.0N 45.6E	47.6N 44.8E	25	LO	250	N	Y	890812	10:33:43	163	218	53	63
94	16	USSR-EUROPEAN	VOLZHSKIY, VOLGA R.	48.5N 45.0E	46.8N 45.0E	20	LO	250	N	Y	890812	10:33:47	163	218	53	63
94	17	USSR-EUROPEAN	VOLGA RIVER	48.0N 45.0E	46.6N 45.4E	20	LO	250	N	Y	890812	10:33:52	163	219	53	63
94	18	USSR-EUROPEAN	VOLGA RIVER	48.0N 45.5E	46.5N 45.6E	25	LO	250	N	N	890812	10:33:55	163	220	53	63
94	19	USSR-EUROPEAN	VOLGA RIVER, AGR.	48.8N 46.0E	46.3N 46.1E	40	LO	250	N	N	890812	10:34:01	163	220	53	63

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
94	20	USSR-EUROPEAN	URAL R. ESTUARY, COAST.	47.5N 51.5E	43.6N 50.4E	20 LO	250 N H	090012	10:37:05	163 229 53 63
94	21	USSR-EUROPEAN	AMUDAR BASIN, KARABAU D5	42.5N 59.5E	40.8N 55.1E	45 LO	250 N H	090012	10:38:26	163 239 52 63
94	22	USSR-EUROPEAN	AMUDAR BASIN, ARAL SEA	43.0N 59.5E	39.7N 55.4E	60 LO	250 N H	090012	10:38:29	163 240 52 63
94	23	USSR-EUROPEAN	AMUDAR BASIN	42.0N 60.0E	39.2N 56.0E	54 LO	250 N H	090012	10:38:40	163 241 51 63
95	47	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.0E	56.9N 46.8E	75 LO	100 N H	090010	08:42:17	162 174 49 50
95	48	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.0E	56.9N 47.2E	75 LO	100 N H	090010	08:42:21	162 175 49 50
95	49	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.5E	56.8N 47.7E	75 LO	100 N H	090010	08:42:25	162 176 49 50
95	50	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.0E	56.3N 52.7E	75 LO	100 N H	090010	08:43:09	162 183 49 50
95	51	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.0E	56.2N 53.7E	80 LO	100 N H	090010	08:43:18	162 185 49 50
95	52	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 49.5E	56.1N 54.3E	80 LO	100 N H	090010	08:43:23	162 186 49 50
96	1	USSR-EUROPEAN	AGRICULTURE-CLOUDY		50.4N 39.0E	70 LO	250 N H	090010	11:47:59	163 220 50 52
96	2	USSR-EUROPEAN	L. SIVASH-IND. POND, AGR.	46.0N 34.0E	49.2N 32.8E	40 LO	250 N H	090010	11:48:33	163 225 49 52
96	3	USSR-EUROPEAN	UTLYUK LAG, LMOLOCHNOYE	46.5N 33.5E	48.2N 34.0E	10 LO	250 N H	090010	11:49:00	163 229 49 52
96	4	USSR-EUROPEAN	L. SIVASH-IND. POND, AGR.	46.0N 34.0E	47.5N 36.3E	30 LO	250 N H	090010	11:49:18	163 231 48 52
96	5	USSR-EUROPEAN	KERCHENSKIY STR. BL. SEA	45.0N 34.5E	45.3N 40.2E	20 LO	250 N H	090010	11:50:13	163 234 47 52
96	6	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 42.0E	44.9N 40.8E	35 LO	250 N Y	090010	11:50:22	163 239 47 52
96	7	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 40.5E	44.4N 41.5E	25 LO	250 N Y	090010	11:50:33	163 240 47 52
96	8	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 40.5E	44.1N 42.0E	20 LO	250 N Y	090010	11:50:40	163 241 47 52
96	9	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	43.0N 41.0E	43.8N 42.4E	15 LO	250 N Y	090010	11:50:47	163 242 47 52
96	10	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	42.5N 41.5E	43.5N 42.8E	10 LO	250 N Y	090010	11:50:55	163 243 47 52
96	11	USSR-EUROPEAN	BLACK SEA, COASTAL CURR.	42.5N 42.0E	43.1N 43.5E	5 LO	250 N Y	090010	11:51:04	163 244 46 52
96	12	USSR-EUROPEAN	KURA R. GORL. KASHURI	42.0N 44.0E	42.6N 44.2E	15 NV	250 N H	090010	11:51:15	163 245 46 52
96	13	USSR-EUROPEAN	ARAGVI R. RESERVOIR	42.0N 44.5E	42.0N 44.3E	10 NV	250 N H	090010	11:51:27	163 246 46 52
96	14	USSR-EUROPEAN	KURA R. RUSTAVI	41.5N 45.0E	41.6N 45.5E	20 NV	250 N H	090010	11:51:37	163 247 45 52
96	15	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.0E	41.3N 45.8E	30 LO	250 N Y	090010	11:51:42	163 248 45 52
96	16	USSR-EUROPEAN	LAKE SEVAN	40.5N 45.5E	41.1N 46.2E	44 LO	250 N Y	090010	11:51:48	163 248 45 52
96	17	USSR-EUROPEAN	KURA R. NEW RESERVOIR	41.0N 46.0E	40.7N 46.6E	10 NV	250 N Y	090010	11:51:55	163 249 45 52
96	18	USSR-EUROPEAN	KURA R. MINGECHAURS RES.	41.0N 46.5E	40.5N 47.0E	10 LO	250 N Y	090010	11:52:01	163 250 45 52
96	19	USSR-EUROPEAN	KURA R. MINGECHAURS RES.	41.0N 47.0E	40.2N 47.2E	30 LO	250 N Y	090010	11:52:06	163 250 45 52
96	20	USSR-EUROPEAN	CAPE KOLKA, KOLKA G. RIGA	58.0N 22.5E	56.3N 25.3E	60 LO	250 N H	090010	08:39:08	161 143 45 50
96	70	USSR-EUROPEAN	SAAREMAA I. G. RIGA	58.5N 22.5E	56.5N 26.6E	60 LO	250 N H	090010	08:39:20	161 145 45 50
96	80	USSR-EUROPEAN	VOLGA R. GORKOSKOYE RES.	57.5N 43.4E	57.1N 42.8E	60 LO	250 N Y	090010	08:41:39	162 168 48 50
96	81	USSR-EUROPEAN	VOLGA R. GORKOSKOYE RES.	57.5N 43.0E	57.0N 44.2E	60 LO	250 N Y	090010	08:41:51	162 170 48 50
96	82	USSR-EUROPEAN	VOLGA R. CHEROKSAR RES.	56.5N 44.0E	56.0N 44.8E	70 NV	250 N H	090010	08:42:13	162 174 49 50
96	83	USSR-EUROPEAN	CHERNUSHKA, AGR.	56.5N 54.5E	55.0N 55.6E	75 NV	250 N H	090010	08:43:31	162 182 50 50
99	3	USSR-EUROPEAN	VOLGA R. URAL R. STEPPE	50.5N 42.0E	53.5N 44.1E	80 HO	50 N H	090010	10:15:47	162 206 50 51
99	4	USSR-EUROPEAN	VOLGA R. URAL R. STEPPE	51.0N 42.0E	53.0N 45.6E	80 HO	50 N H	090010	10:16:03	162 208 50 51
99	67	USSR-EUROPEAN	KAMA R. VOTKINSKOYE RES.	56.5N 55.0E	54.1N 57.1E	60 HO	50 N H	090011	08:53:16	162 184 51 46
99	68	USSR-EUROPEAN	KAMA R. VOTKINSKOYE RES.	56.0N 55.0E	53.7N 58.7E	70 HO	50 N H	090011	08:53:33	162 197 51 46
99	70	USSR-EUROPEAN	URAL R. ESTUARY, CASP. SEA	47.5N 50.5E	49.3N 47.9E	15 HO	50 N H	090011	10:26:21	163 217 51 47
99	71	USSR-EUROPEAN	URAL R. ESTUARY, CASP. SEA	47.0N 52.0E	48.7N 49.2E	15 HO	50 N H	090011	10:26:37	163 220 51 47
99	74	USSR-EUROPEAN	BLACK SEA, DENPR REST.	48.0N 30.0E	49.1N 25.2E	80 HO	50 N H	090011	11:56:56	163 217 51 48
99	75	USSR-EUROPEAN	BLACK SEA, CRIMEA	45.5N 32.5E	46.3N 29.8E	40 HO	50 N H	090011	11:57:56	163 226 51 48
100	4	USSR-EUROPEAN	ZAPADNAYA RT. PEAT MINE	55.5N 29.0E	55.7N 28.4E	0 NV	250 N H	090012	07:24:28	161 125 58 61
100	27	USSR-EUROPEAN	KUYBYSHEV RES. ULYANOVSK	54.5N 49.0E	53.6N 51.4E	40 LO	250 N H	090012	09:01:50	162 189 51 62
100	28	USSR-EUROPEAN	ORENBURG, URAL R. SAKMAR R.	52.0N 55.0E	52.3N 55.7E	40 NV	250 N H	090012	09:02:35	162 196 52 62
100	29	USSR-EUROPEAN	NOVOTROITSK, ORSK, URAL R.	51.0N 58.5E	51.3N 58.4E	10 NV	250 N H	090012	09:03:06	162 201 52 62
100	30	USSR-EUROPEAN	DOMBAROVSKIY RES. INDUST.	51.0N 60.0E	50.5N 60.3E	15 NV	250 N H	090012	09:03:28	162 204 53 62
151	21	USSR-EUROPEAN	G. FINLAND, L. PEIPUS	59.5N 28.0E	57.2N 23.3E	80 HO	90 N H	090009	10:02:59	162 168 48 15
151	22	USSR-EUROPEAN	G. FINLAND, L. PEIPUS	59.5N 29.0E	57.1N 25.1E	80 HO	90 N H	090009	10:03:14	162 172 49 15
151	23	USSR-EUROPEAN	CLOUD FRONT CONVERGENCE		57.1N 27.8E	85 HO	90 N H	090009	10:03:37	162 176 49 15
151	24	USSR-EUROPEAN	CLOUD FRONT, RYBINSK RES.	58.5N 39.0E	56.7N 33.4E	90 HO	90 N H	090009	10:04:25	162 185 49 15
151	25	USSR-EUROPEAN	VOLGA R. L. SHALKAR	52.5N 51.0E	51.8N 46.6E	85 HO	90 N H	090009	10:04:26	162 205 49 15
151	26	USSR-EUROPEAN	VOLGA R. L. SHALKAR	52.5N 52.0E	51.5N 47.9E	85 HO	90 N H	090009	10:04:58	162 207 49 15
151	27	USSR-EUROPEAN	CLOUDS, AGRICULTURE		52.0N 54.0E	90 HO	90 N H	090009	10:07:40	162 217 48 15
151	61	USSR-EUROPEAN	SEA OF AZOV, BLACK SEA	46.0N 35.0E	51.1N 34.1E	80 HO	90 N Y	090009	11:39:08	163 225 48 16
151	62	USSR-EUROPEAN	DNEPR R. SEA OF AZOV	46.5N 34.5E	50.6N 37.4E	75 HO	90 N Y	090009	11:39:23	163 227 47 16
151	63	USSR-EUROPEAN	DNEPR R. SEA OF AZOV	45.0N 34.5E	50.2N 38.4E	75 HO	90 N Y	090009	11:39:35	163 228 47 16
151	64	USSR-EUROPEAN	SEA OF AZOV, EAST COAST	45.0N 38.0E	49.7N 39.4E	80 HO	90 N Y	090009	11:39:44	163 230 47 16
151	65	USSR-EUROPEAN	SEA OF AZOV, EAST COAST	45.0N 39.0E		75 HO	90 N Y			
151	66	USSR-EUROPEAN	LAKE SEVAN	40.0N 46.0E	48.3N 41.5E	85 HO	90 N H	090009	11:40:16	163 234 46 16
151	67	USSR-EUROPEAN	SEA OF AZOV, DON R. DELTA	45.5N 38.5E		75 HO	90 N Y			
151	68	USSR-EUROPEAN	SEA OF AZOV, DON R. DELTA	45.5N 38.5E	48.3N 42.5E	75 HO	90 N Y	090009	11:40:27	163 235 46 16
151	69	USSR-EUROPEAN	CASPIAN SEA, L. SEVAN	42.0N 48.0E	47.0N 46.0E	60 HO	90 N H	090009	11:40:59	163 239 45 16
151	70	USSR-EUROPEAN	L. SEVAN, CAUCASUS MTHS	40.0N 45.0E	46.3N 46.3E	80 HO	90 N Y	090009	11:41:18	163 241 45 16
151	71	USSR-EUROPEAN	L. SEVAN, CAUCASUS MTHS	39.0N 46.0E	45.4N 47.7E	75 HO	90 N Y	090009	11:41:38	163 244 46 16
151	72	USSR-EUROPEAN	CASPIAN SEA, PESCHANYI PT	43.5N 50.5E	43.8N 50.2E	40 NV	90 N Y	090009	11:42:15	163 248 43 16
151	73	USSR-EUROPEAN	CASPIAN SEA, EAST COAST	42.5N 51.0E	43.3N 50.9E	50 NV	90 N Y	090009	11:42:27	163 249 43 16
151	74	USSR-EUROPEAN	CASPIAN SEA, EAST COAST	42.0N 51.5E	42.5N 52.1E	50 NV	90 N Y	090009	11:42:45	163 251 42 16
151	75	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 52.5E		50 NV	90 N Y			

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
151	76	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.0N 53.0E	41.0N 53.0E	50 NV	90 N Y	890809	11:43:01	163 252 42 16
151	77	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E	41.5N 53.5E	50 NV	90 N Y	890809	11:43:13	164 253 41 16
151	78	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	41.5N 53.5E	41.2N 53.7E	50 NV	90 N Y	890809	11:43:13	164 253 41 16
151	79	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	40.5N 53.5E		40 NV	90 N Y			
151	80	USSR-EUROPEAN	KARA-BOGAZ-GOL BAY	40.0N 54.0E	40.6N 54.5E	30 NV	90 N Y	890809	11:43:26	164 254 41 16
151	81	USSR-EUROPEAN	UZBOY R. SAYNAKSAR DES.	39.5N 54.0E		30 NV	90 N Y			
151	82	USSR-EUROPEAN	UZBOY R. SAYNAKSAR DES.	39.0N 54.5E	40.0N 55.4E	25 NV	90 N Y	890809	11:43:41	164 256 41 16
151	83	USSR-EUROPEAN	UZBOY R. TSENTRALNYE DES	34.5N 56.5E	39.2N 56.3E	10 NV	90 N Y	890809	11:43:57	164 257 40 16
151	84	USSR-EUROPEAN	TSENTRALNYE DES. MTHS	38.5N 56.5E		10 NV	90 N Y			
151	85	USSR-EUROPEAN	TSENTRALNYE DES. AGR.	37.5N 59.5E	36.7N 59.0E	0 NV	90 N Y	890809	11:44:48	164 261 38 16
151	89	USSR-EUROPEAN	TSENTRALNYE DES. AGR.	37.5N 60.0E		0 NV	90 N Y			
151	253	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	56.0N 48.5E		85 LO	90 N Y			
151	254	USSR-EUROPEAN	VOLGA R. KUYBYSHEV RES.	55.0N 48.5E		85 LO	90 N Y			
151	255	USSR-EUROPEAN	KAMA R. KUYBYSHEV RES.	56.0N 51.5E		85 LO	90 N H			
151	256	USSR-EUROPEAN	KAMA RIVER. AGR.	55.0N 54.5E		85 LO	90 N H			
152	16	USSR-EUROPEAN	PENZA. SURR. R.	53.0N 44.5E	53.0N 45.4E	70 NV	250 N H	890810	10:16:07	162 209 50 31
152	17	USSR-EUROPEAN	VOLGA R. VOLSI	52.0N 47.0E	52.6N 47.0E	60 NV	250 N H	890810	10:16:20	162 210 50 31
152	18	USSR-EUROPEAN	SARATOV RES. BARAKOVO	52.5N 48.0E		60 NV	250 N H			
152	19	USSR-EUROPEAN	L. ELTON. STEPPE	49.5N 47.5E	51.0N 49.2E	70 LO	250 N H	890810	10:16:44	162 214 50 31
152	20	USSR-EUROPEAN	URAL R. STEPPE	50.0N 51.0E	50.0N 52.0E	30 NV	250 N Y	890810	10:17:16	162 219 58 31
152	21	USSR-EUROPEAN	URAL R. STEPPE	49.0N 52.0E		60 NV	250 N Y			
152	22	USSR-EUROPEAN	STEPPE	50.0N 53.5E	50.3N 53.4E	30 NV	250 N Y	890810	10:17:32	163 221 49 31
152	23	USSR-EUROPEAN	STEPPE. UIL R. AGR	50.0N 54.5E		25 NV	250 N Y			
152	24	USSR-EUROPEAN	STEPPE. KHOBDA R. AGR.	49.5N 54.0E	49.6N 54.9E	50 NV	250 N H	890810	10:17:50	163 224 49 31
152	25	USSR-EUROPEAN	ARAL SEA. DESERT	46.5N 57.5E	48.4N 57.5E	70 LO	250 N H	890810	10:18:23	163 228 49 31
152	28	USSR-EUROPEAN	ARAL SEA. DESERT	45.0N 59.0E	46.7N 60.7E	40 LO	250 N H	890810	10:18:46	163 234 48 31
152	29	USSR-EUROPEAN	ARAL SEA. DESERT	45.5N 59.0E		50 LO	250 N H			
152	30	USSR-EUROPEAN	ARAL SEA. DESERT	45.5N 59.5E	46.1N 61.7E	50 LO	250 N H	890810	10:19:21	163 235 48 31
152	68	USSR-EUROPEAN	SAAREMAA I. MUUMAA I.	58.0N 23.5E	54.2N 18.5E	70 LO	250 N H	890810	11:45:54	162 201 50 32
152	69	USSR-EUROPEAN	KAKHOV RES. SEA OF AZOV	46.5N 34.5E	49.0N 31.5E	50 LO	250 N H	890810	11:48:37	163 223 49 32
152	70	USSR-EUROPEAN	KERCHEN STR. BLACK SEA	44.0N 36.0E	48.7N 34.0E	40 HO	250 N H	890810	11:48:48	163 227 49 32
152	71	USSR-EUROPEAN	KERCHEN STR. SEA OF AZOV	45.5N 38.0E		50 LO	250 N H			
152	201	USSR-EUROPEAN	KEMAN R. VOLKOVYISK	53.0N 24.5E	53.4N 25.5E	50 NV	250 N H	890811	07:14:33	161 117 37 45
152	202	USSR-EUROPEAN	KUYBYSHEV RES. VOLGA R.	55.0N 48.0E	56.0N 48.0E	80 LO	250 N H	890811	07:17:51	161 145 44 45
152	203	USSR-EUROPEAN	VYATKA R. AGRICULTURE	57.5N 49.0E	57.0N 49.2E	40 NV	250 N H	890811	07:18:12	161 149 45 45
152	204	USSR-EUROPEAN	KAMA R. NEW RESERVOIR	56.0N 52.0E	57.1N 50.7E	30 LO	250 N H	890811	07:18:25	161 151 45 45
152	205	USSR-EUROPEAN	KAMA R. NEW RESERVOIR	56.5N 52.0E	57.1N 52.0E	40 LO	250 N H	890811	07:18:36	161 152 46 45
152	206	USSR-EUROPEAN	KAMA R. VOTKINSKOYE RES	57.5N 54.5E	57.2N 54.6E	10 NV	250 N Y	890811	07:18:50	161 156 46 45
152	207	USSR-EUROPEAN	KAMA R. BAKHAREVKA	58.0N 55.5E	57.1N 56.0E	25 NV	250 N Y	890811	07:19:10	161 158 47 45
152	208	USSR-EUROPEAN	KAMA R. BAKHAREVKA	57.5N 56.5E	57.1N 57.2E	40 NV	250 N Y	890811	07:19:20	161 160 47 45
152	209	USSR-EUROPEAN	KAMA R. BAKHAREVKA	57.5N 56.0E	57.1N 57.7E	40 NV	250 N Y	890811	07:19:24	161 160 47 45
152	210	USSR-EUROPEAN	KAMA RIVER. AGR.	56.5N 56.0E	57.1N 58.3E	40 LO	250 N H	890811	07:19:29	161 161 47 45
152	211	USSR-EUROPEAN	SYVERDLOVSK. REYDA	57.0N 59.5E	57.1N 59.0E	60 NV	250 N H	890811	07:19:35	161 162 47 45
73	95	USSR-MIDDLE	KRASNOYARSK	56.0N 93.0E	55.2N 90.4E	80 LO	250 N H	890812	05:58:42	162 179 50 60
73	96	USSR-MIDDLE	KRASNOYARSK	56.0N 93.3E	55.0N 91.6E	80 LO	250 N H	890812	05:58:53	162 180 50 60
73	97	USSR-MIDDLE	LAKE BAYKAL	52.0N 105.5E	51.6N 103.4E	85 LO	250 N H	890812	06:00:55	162 200 52 60
73	98	USSR-MIDDLE	LAKE GUSINYOYE	51.0N 106.5E	51.0N 105.2E	90 NV	250 N H	890812	06:01:16	162 203 52 60
75	24	USSR-MIDDLE	AGRICULTURE	54.0N 72.0E	54.3N 71.9E	60 NV	100 N H	890809	08:34:30	162 209 49 14
75	25	USSR-MIDDLE	IRTYSH RIVER	51.0N 79.5E	52.7N 77.5E	30 LO	100 N H	890809	08:37:23	162 218 48 14
75	26	USSR-MIDDLE	AGRICULTURE	51.5N 80.0E	52.2N 79.1E	20 NV	100 N H	890809	08:37:45	162 221 48 14
75	27	USSR-MIDDLE	MOUNTAINS. CLOUDS	50.5N 84.0E	50.0N 82.0E	30 NV	100 N Y	890809	08:38:27	163 227 47 14
75	28	USSR-MIDDLE	MOUNTAINS. CLOUDS	50.0N 84.5E	50.0N 83.3E	40 NV	100 N Y	890809	08:38:33	163 228 47 14
75	29	USSR-MIDDLE	MOUNTAINS. CLOUDS	50.0N 85.0E	50.0N 83.9E	50 NV	100 N Y	890809	08:38:46	163 229 47 14
75	30	USSR-MIDDLE	MOUNTAINS. CLOUDS	50.0N 85.5E	50.2N 84.4E	50 NV	100 N Y	890809	08:38:46	163 229 47 14
75	31	USSR-MIDDLE	MOUNTAINS. CLOUDS	49.5N 86.0E	49.9N 85.0E	50 NV	100 N Y	890809	08:38:53	163 230 47 14
75	32	USSR-MIDDLE	MOUNTAINS. CLOUDS	49.5N 86.5E	49.7N 85.5E	60 NV	100 N Y	890809	08:39:00	163 231 47 14
75	33	USSR-MIDDLE	LAKE ZAYSAN	48.0N 84.5E	49.2N 84.7E	40 NV	100 N Y	890809	08:39:14	163 233 46 14
75	34	USSR-MIDDLE	LAKE ZAYSAN	48.0N 85.0E	49.1N 86.9E	40 NV	100 N Y	890809	08:39:17	163 233 46 14
75	61	USSR-MIDDLE	CHU RIVER	45.0N 69.5E	45.7N 70.2E	5 NV	100 N Y	890809	10:11:12	163 243 44 15
75	62	USSR-MIDDLE	CHU RIVER	45.0N 71.5E	45.4N 70.7E	5 NV	100 N Y	890809	10:11:20	163 244 44 15
75	63	USSR-MIDDLE	CHU RIVER	45.0N 72.0E	45.1N 71.2E	5 NV	100 N Y	890809	10:11:27	163 245 44 15
75	64	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.0E	44.7N 71.9E	20 LO	100 N Y	890809	10:11:37	163 246 44 15
75	65	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	44.4N 72.3E	30 LO	100 N Y	890809	10:11:44	163 247 43 15
75	66	USSR-MIDDLE	LAKE BALKHASH	46.0N 74.0E	43.3N 73.9E	40 LO	100 N H	890809	10:12:08	163 249 43 15
75	67	USSR-MIDDLE	AGRICULTURE	43.0N 73.5E	42.9N 74.4E	50 NV	100 N Y	890809	10:12:17	163 250 42 15
75	68	USSR-MIDDLE	AGRICULTURE	43.0N 73.5E	42.6N 74.9E	50 NV	100 N Y	890809	10:12:24	163 251 42 15
75	69	USSR-MIDDLE	TIAN MOUNTAINS	41.5N 75.5E	41.7N 76.1E	60 NV	100 N H	890809	10:12:46	163 253 42 15
75	70	USSR-MIDDLE	TIAN MOUNTAINS	41.5N 76.5E	41.4N 76.6E	70 NV	100 N Y	890809	10:12:52	164 253 41 15
75	71	USSR-MIDDLE	LAKE ISSY-KUL. TIAN MTS.	42.0N 77.5E	41.1N 76.9E	80 NV	100 N Y	890809	10:12:58	164 254 41 15
76	82	USSR-MIDDLE	CLOUDS. AGRICULTURE	52.5N 75.0E	53.6N 74.4E	70 NV	250 N Y	890809	08:36:48	162 213 49 14

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S DATE	GMT	AL	SUN AZ EL OR
76	83	USSR-MIDDLE	CLOUDS, AGRICULTURE	52.5N 75.0E	53.4N 75.1E	70 NV	250 N Y 890809	08:36:56	162	215 48 14
76	84	USSR-MIDDLE	LAKE KULUNDINSKOYE	53.8N 79.5E	52.6N 77.9E	5 NV	250 N Y 890809	08:37:25	162	219 48 14
76	85	USSR-MIDDLE	LAKE KULUNDINSKOYE	53.8N 79.5E	52.3N 78.6E	5 NV	250 N Y 890809	08:37:33	162	220 48 14
76	86	USSR-MIDDLE	UST-KAMENOGORSKOYE RES.	49.5N 83.5E	50.8N 82.8E	40 NV	250 N N 890809	08:38:28	163	227 47 14
77	4	USSR-MIDDLE	AGRICULTURE, CLOUDS		50.1N 61.6E	70	250 N N 890809	10:09:12	163	229 47 15
77	5	USSR-MIDDLE	AGRICULTURE, CLOUDS		49.7N 62.4E	70 LO	250 N N 890809	10:08:22	163	231 47 15
77	6	USSR-MIDDLE	AGRICULTURE, TERSAKKAN R.	50.5N 67.5E	48.1N 65.9E	50 LO	250 N N 890809	10:10:07	163	234 46 15
77	7	USSR-MIDDLE	AGRICULTURE, TERSAKKAN R.	50.8N 67.0E	47.9N 66.3E	10 LO	250 N N 890809	10:10:12	163	237 46 15
77	8	USSR-MIDDLE	LAKE TENGIZ	50.5N 69.0E	47.5N 67.1E	60 LO	250 N N 890809	10:10:22	163	238 45 15
77	9	USSR-MIDDLE	LAKE TENGIZ	50.8N 69.5E	47.3N 67.4E	50 LO	250 N N 890809	10:10:27	163	239 45 15
77	10	USSR-MIDDLE	KAZAKHSTAN		46.4N 69.1E	30	250 N N 890809	10:10:50	163	241 45 15
77	11	USSR-MIDDLE	KAZAKHSTAN		45.6N 70.4E	5	250 N N 890809	10:11:00	163	244 44 15
77	12	USSR-MIDDLE	LAKE BALKHASH	46.5N 74.0E	44.6N 71.9E	20 LO	250 N N 890809	10:11:31	163	246 44 15
77	13	USSR-MIDDLE	LAKE BALKHASH	46.8N 74.0E	44.2N 72.6E	10 NV	250 N N 890809	10:11:41	163	247 43 15
77	14	USSR-MIDDLE	LAKE BALKHASH	45.8N 74.0E	43.2N 74.1E	40 NV	250 N N 890809	10:12:04	163	249 43 15
77	15	USSR-MIDDLE	LAKE BALKHASH	46.5N 74.5E	42.6N 74.9E	60 LO	250 N N 890809	10:12:18	163	251 42 15
77	16	USSR-MIDDLE	LAKE BALKHASH	46.5N 79.0E	41.8N 76.0E	40 LO	250 N N 890809	10:12:35	163	252 42 15
77	17	USSR-MIDDLE	LAKE ISSYK KUL	42.5N 78.0E	41.3N 76.7E	50 NV	250 N N 890809	10:12:47	164	253 41 15
77	67	USSR-MIDDLE	LAKE AYDARKUL	42.8N 67.0E	37.9N 57.7E	30 HO	250 N N 890809	11:44:38	164	259 39 16
77	68	USSR-MIDDLE	MURGAB RIVER AGRICULTURE	37.5N 62.5E	36.3N 59.5E	0 LO	250 N N 890809	11:45:04	164	262 38 16
79	35	USSR-MIDDLE	KARA KUM	33.8N 60.8E	37.6N 58.1E	0 LO	100 N N 890809	11:46:38	164	268 39 16
79	36	USSR-MIDDLE	KARA KUM	37.5N 60.5E	37.1N 58.4E	0 LO	100 N N 890809	11:46:59	164	261 38 16
79	38	USSR-MIDDLE	KARA KUM	37.5N 64.8E	36.1N 59.7E	5 LO	100 N N 890809	11:45:01	164	262 38 16
80	13	USSR-MIDDLE	ARAL SEA	46.8N 68.0E	46.7N 68.7E	70 NV	100 N Y 890810	10:19:21	163	234 48 31
80	15	USSR-MIDDLE	ARAL SEA	45.5N 61.5E	46.1N 61.7E	30 NV	100 N Y 890810	10:19:35	163	236 48 31
80	16	USSR-MIDDLE	ARAL SEA	44.5N 60.5E	45.7N 62.4E	10 LO	100 N Y 890810	10:19:45	163	237 47 31
80	17	USSR-MIDDLE	DESERT EAST OF ARAL SEA	44.5N 63.5E	45.2N 63.2E	20 NV	100 N Y 890810	10:19:56	163	238 47 31
80	18	USSR-MIDDLE	DESERT EAST OF ARAL SEA	44.8N 62.5E	44.8N 63.8E	10 NV	100 N Y 890810	10:20:06	163	239 47 31
80	19	USSR-MIDDLE	ARAL SEA	44.8N 62.0E	44.3N 64.6E	20 LO	100 N Y 890810	10:20:17	163	241 47 31
80	20	USSR-MIDDLE	SYR RIVER	45.5N 65.0E	44.6N 65.1E	20 NV	100 N N 890810	10:20:25	163	242 47 31
80	21	USSR-MIDDLE	SYR RIVER	44.5N 66.0E	43.4N 66.0E	5 NV	100 N Y 890810	10:20:39	163	243 46 31
80	22	USSR-MIDDLE	SYR RIVER	44.8N 67.0E	43.8N 66.6E	5 NV	100 N Y 890810	10:20:48	163	244 46 31
80	23	USSR-MIDDLE	SYR RIVER	43.5N 67.5E	42.5N 67.3E	0 NV	100 N Y 890810	10:20:59	163	245 46 31
80	24	USSR-MIDDLE	SYR RIVER	42.5N 68.5E	41.8N 68.2E	0 NV	100 N Y 890810	10:21:14	163	247 45 31
80	25	USSR-MIDDLE	SYR RIVER	42.8N 68.0E	41.5N 68.6E	0 NV	100 N Y 890810	10:21:21	163	248 45 31
80	26	USSR-MIDDLE	LAKE AYDARKUL	41.8N 67.5E	41.2N 69.0E	0 NV	100 N Y 890810	10:21:28	163	248 45 31
80	27	USSR-MIDDLE	TASHKENT	41.5N 70.0E	40.5N 69.9E	5 NV	100 N Y 890810	10:21:43	163	250 45 31
80	28	USSR-MIDDLE	TASHKENT, SYR RIVER	40.5N 68.5E	40.3N 70.2E	0 NV	100 N Y 890810	10:21:48	163	250 44 31
80	29	USSR-MIDDLE	KOKAND, SYR RIVER	40.5N 71.8E	40.8N 70.5E	5 NV	100 N Y 890810	10:21:53	163	251 42 31
80	30	USSR-MIDDLE	KAYRAKUMSKOYE RESERVOIR	40.8N 69.5E	39.8N 70.7E	0 NV	100 N Y 890810	10:21:57	163	251 44 31
80	31	USSR-MIDDLE	KAYRAKUMSKOYE RESERVOIR	39.5N 70.5E	39.8N 71.7E	0 NV	100 N Y 890810	10:22:15	164	253 44 31
80	32	USSR-MIDDLE	PAMIRS	39.8N 72.0E	38.6N 72.2E	0 NV	100 N Y 890810	10:22:24	164	254 43 31
80	33	USSR-MIDDLE	PAMIRS	39.8N 73.0E	38.3N 72.5E	0 NV	100 N Y 890810	10:22:30	164	254 43 31
80	34	USSR-MIDDLE	PAMIRS	38.5N 72.0E	37.7N 73.2E	0 LO	100 N N 890810	10:22:42	164	255 43 31
83	78	USSR-MIDDLE	OB RIVER, NOVOSIBIRSK	56.8N 83.0E	56.3N 83.2E	60 NV	100 N N 890812	05:58:43	161	168 48 61
83	89	USSR-MIDDLE	FIRES, SMOKE		55.6N 66.3E	30 HO	100 N N 890812	07:38:09	162	176 50 60
83	90	USSR-MIDDLE	CLOUDS		55.6N 77.6E	90	100 N N 890812	07:32:02	162	195 52 61
84	13	USSR-MIDDLE	AMU RIVER	48.8N 61.8E	39.2N 56.9E	5 LO	100 N N 890812	10:38:38	163	241 51 63
84	14	USSR-MIDDLE	IRAN BORDER	34.5N 64.5E	38.5N 56.9E	20 LO	100 N N 890812	10:38:54	163	243 51 63
84	16	USSR-MIDDLE	MURGAB RIVER	37.8N 61.8E	36.9N 58.6E	5 LO	100 N N 890812	10:39:26	164	247 50 63
84	88	USSR-MIDDLE	FIRES, SMOKE		56.6N 73.4E	90 LO	100 N N 890813	06:06:27	161	157 46 76
84	89	USSR-MIDDLE	FIRES, SMOKE		56.3N 75.6E	90 LO	100 N N 890813	06:06:47	161	160 47 76
84	90	USSR-MIDDLE	FIRES, SMOKE		56.1N 77.3E	80 LO	100 N N 890813	06:07:02	161	162 48 76
84	91	USSR-MIDDLE	OB RIVER, NOVOSIBIRSK	54.5N 83.5E	55.6N 89.5E	80 LO	100 N N 890813	06:07:31	161	167 49 76
87	29	USSR-MIDDLE	CLOUDS		56.5N 66.4E	90 HO	100 N N 890811	07:20:44	162	173 49 45
87	30	USSR-MIDDLE	FIRES, SMOKE		56.0N 70.3E	90 HO	100 N N 890811	07:21:18	162	178 49 45
87	31	USSR-MIDDLE	FIRES, SMOKE		55.9N 71.1E	90 HO	100 N N 890811	07:21:26	162	180 50 45
87	67	USSR-MIDDLE	AMU RIVER	34.5N 64.5E	35.8N 67.5E	10 LO	100 N N 890811	10:31:34	164	254 46 47
87	68	USSR-MIDDLE	AFGHANISTAN BORDER	34.5N 69.5E	35.2N 68.1E	20 LO	100 N N 890811	10:31:46	164	255 45 47
88	67	USSR-MIDDLE	ASBEST	57.8N 61.5E	56.9N 61.2E	60 NV	250 N N 890811	07:20:06	161	165 48 45
88	68	USSR-MIDDLE	TYUMEN	57.8N 65.5E	56.5N 66.1E	70 NV	250 N Y 890811	07:20:49	162	173 49 45
88	69	USSR-MIDDLE	TYUMEN	57.8N 66.0E	56.4N 67.0E	70 NV	250 N Y 890811	07:20:57	162	174 49 45
88	70	USSR-MIDDLE	IRTYSH RIVER, OMSK	55.0N 73.5E	55.2N 75.3E	80 LO	250 N N 890811	07:22:13	162	187 50 45
88	71	USSR-MIDDLE	NOVOSIBIRSKOYE RESERVOIR	54.5N 82.0E	54.2N 79.7E	70 LO	250 N N 890811	07:22:55	162	194 51 45
88	72	USSR-MIDDLE	AGRICULTURE	54.0N 81.0E	54.0N 80.5E	80 NV	250 N N 890811	07:23:04	162	195 51 45
88	73	USSR-MIDDLE	AGRICULTURE	53.5N 80.5E	53.8N 81.3E	80 NV	250 N N 890811	07:23:12	162	197 51 45
88	74	USSR-MIDDLE	AGRICULTURE	54.0N 81.0E	53.5N 82.4E	80 NV	250 N N 890811	07:23:23	162	198 51 45
88	75	USSR-MIDDLE	AGRICULTURE	54.8N 81.0E	53.3N 82.9E	80 LO	250 N N 890811	07:23:28	162	199 51 45
88	76	USSR-MIDDLE	AGRICULTURE	52.8N 83.5E	52.8N 84.6E	60 NV	250 N N 890811	07:23:46	162	202 51 45
88	77	USSR-MIDDLE	AGRICULTURE	52.8N 85.0E	52.7N 84.9E	50 NV	250 N N 890811	07:23:49	162	203 51 45

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC	TL	FL	E	S	DATE	GMT	SUN AL AZ EL	OR
88	78	USSR-MIDDLE	MTNS/AG N. OF MONGOLIA	51.0N 90.5E	50.4N 91.4E	60	NV	250	N	N	890811	07:25:02	162 214 51	45
90	68	USSR-MIDDLE	CLOUDS		57.1N 60.8E	70		250	N	N	890813	06:04:43	161 140 42	76
90	69	USSR-MIDDLE	CLOUDS		57.2N 62.1E	60		250	N	N	890813	06:04:54	161 142 43	76
90	70	USSR-MIDDLE	FIRES, SMOKE		56.8N 70.3E	40		250	N	N	890813	06:07:15	161 144 48	76
90	71	USSR-MIDDLE	FIRES, SMOKE		55.8N 70.1E	20		250	N	N	890813	06:07:22	161 145 48	76
90	72	USSR-MIDDLE	NOVOSIBIRSK	55.0N 83.0E	55.6N 80.4E	30	LO	250	N	N	890813	06:07:34	161 147 49	76
90	73	USSR-MIDDLE	KYZYL	51.5N 84.5E	52.1N 84.5E	80	NV	250	N	N	890813	06:09:56	162 189 52	76
90	94	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.2N 64.1E	20	NV	250	N	Y	890813	07:39:08	161 176 51	77
90	95	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.1N 64.7E	20	NV	250	N	Y	890813	07:39:14	161 177 51	77
90	96	USSR-MIDDLE	AGRICULTURE	52.5N 64.0E	54.0N 65.0E	20	NV	250	N	Y	890813	07:39:17	161 178 51	77
90	97	USSR-MIDDLE	LAKE TENGIZ	50.5N 69.0E	52.5N 70.3E	30	LO	250	N	N	890813	07:40:12	162 186 52	77
90	98	USSR-MIDDLE	LAKE TENGIZ	50.5N 69.0E	52.3N 70.8E	30	LO	250	N	N	890813	07:40:18	162 187 52	77
90	99	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.0E	50.6N 75.4E	5	LO	250	N	N	890813	07:41:10	162 196 53	77
90	100	USSR-MIDDLE	LAKE BALKHASH	45.5N 74.5E	50.5N 75.7E	5	LO	250	N	N	890813	07:41:13	162 196 53	77
90	101	USSR-MIDDLE	LAKE BALKHASH	46.5N 75.0E	50.4N 75.9E	30	LO	250	N	N	890813	07:41:16	162 196 53	77
90	102	USSR-MIDDLE	LAKE BALKHASH	46.8N 74.0E	50.3N 76.2E	20	LO	250	N	N	890813	07:41:19	162 197 54	77
90	103	USSR-MIDDLE	LAKE BALKHASH	46.5N 75.0E	50.1N 76.8E	20	LO	250	N	N	890813	07:41:26	162 198 54	77
90	104	USSR-MIDDLE	LAKE BALKHASH	46.5N 76.0E	49.8N 77.1E	30	LO	250	N	N	890813	07:41:30	162 199 54	77
91	0 A	USSR-MIDDLE	LAKE BALKHASH	46.5N 79.0E		10	LO	250	N	N				
91	0 B	USSR-MIDDLE	LAKE SASYKKOL	46.0N 81.0E		5	LO	250	N	N				
91	0 C	USSR-MIDDLE	LAKE ALAKOL	46.5N 81.5E		10	LO	250	N	N				
91	0 D	USSR-MIDDLE	LAKE ALAKOL	46.0N 81.5E		5	LO	250	N	N				
91	10	USSR-MIDDLE	ARAL SEA	45.5N 60.0E	46.2N 61.5E	30	LO	250	N	N	890813	09:13:32	162 213 55	78
91	11	USSR-MIDDLE	ARAL SEA	45.5N 61.0E	46.0N 61.8E	0	NV	250	N	N	890813	09:13:36	162 213 55	78
91	12	USSR-MIDDLE	ARAL SEA	44.5N 61.0E	45.9N 62.1E	0	NV	250	N	Y	890813	09:13:40	162 214 55	78
91	13	USSR-MIDDLE	ARAL SEA	44.0N 60.5E	45.8N 62.2E	5	LO	250	N	Y	890813	09:13:42	162 214 55	78
91	15	USSR-MIDDLE	KYZYLKUM		45.1N 63.3E	0		250	N	Y	890813	09:13:57	163 216 55	78
91	16	USSR-MIDDLE	KYZYLKUM		44.5N 64.3E	0		250	N	Y	890813	09:14:12	163 219 55	78
91	17	USSR-MIDDLE	KYZYLKUM		44.1N 64.9E	0		250	N	Y	890813	09:14:21	163 220 55	78
91	18	USSR-MIDDLE	LAKE AYDARKUL	41.0N 67.0E	41.0N 68.0E	0	NV	250	N	N	890813	09:15:10	163 227 55	78
91	19	USSR-MIDDLE	LAKE AYDARKUL	41.0N 66.5E	41.8N 68.2E	0	LO	250	N	N	890813	09:15:14	163 227 55	78
93	26	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	44.0N 66.5E	43.5N 65.0E	0	LO	100	N	Y	890810	10:20:32	163 243 44	31
93	27	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	44.0N 67.0E	43.3N 66.2E	0	LO	100	N	Y	890810	10:20:37	163 244 44	31
93	28	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	43.5N 67.5E	42.9N 66.7E	0	NV	100	N	Y	890810	10:20:44	163 244 44	31
93	29	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	43.0N 68.0E	42.9N 66.9E	0	NV	100	N	Y	890810	10:20:46	163 245 44	31
93	30	USSR-MIDDLE	SYRDAR R. KYZYLKUM DES.	42.5N 68.0E	42.7N 67.0E	0	NV	100	N	Y	890810	10:20:48	163 245 44	31
93	31	USSR-MIDDLE	SYRDAR R. TASHKENT. AGR.	41.0N 68.5E	42.4N 67.4E	0	LO	100	N	N	890810	10:20:56	163 246 44	31
93	32	USSR-MIDDLE	SYRDAR R. KAYRAKKUM RES.	40.5N 70.0E	41.8N 68.3E	5	LO	100	N	N	890810	10:21:10	163 247 45	31
93	33	USSR-MIDDLE	SYRDAR R. FERGANA BASIN	40.5N 70.5E	41.5N 68.7E	5	LO	100	N	N	890810	10:21:17	163 248 45	31
93	34	USSR-MIDDLE	SYRDAR R. TASHKENT. AGR.	41.0N 69.0E	41.1N 69.1E	0	NV	100	N	Y	890810	10:21:24	163 249 45	31
93	35	USSR-MIDDLE	SYRDAR R. RESERVOIRS. AGR.	40.5N 68.5E	41.0N 69.3E	0	NV	100	N	Y	890810	10:21:27	163 249 45	31
93	36	USSR-MIDDLE	MT. KOMMUNIZMA. TURK.RGE.	39.5N 71.5E	40.3N 70.1E	5	LO	100	N	Y	890810	10:21:42	163 250 44	31
93	37	USSR-MIDDLE	MT. KOMMUNIZMA. TURK.RGE.	39.5N 71.0E	40.2N 70.3E	5	LO	100	N	Y	890810	10:21:44	163 250 44	31
93	38	USSR-MIDDLE	TURKISTAN RGE. ZERASHAN R.	39.5N 70.0E	40.1N 70.4E	5	NV	100	N	Y	890810	10:21:46	163 251 44	31
93	39	USSR-MIDDLE	TURKISTAN RGE. ZERASHAN R.	39.0N 69.5E	40.0N 70.5E	5	LO	100	N	Y	890810	10:21:48	163 251 44	31
93	40	USSR-MIDDLE	PETRA PERYOVO RANGE	37.5N 69.5E	39.7N 70.0E	0	LO	100	N	Y	890810	10:21:55	163 252 44	31
93	43	USSR-MIDDLE	MT. REVOLUCH. PET. PER. RG.	38.0N 72.0E	39.4N 71.3E	0	LO	100	N	Y	890810	10:22:02	164 252 44	31
93	44	USSR-MIDDLE	MT. REVOLUCH. PET. PER. RG.	38.0N 73.0E	39.2N 71.5E	0	LO	100	N	Y	890810	10:22:06	164 253 44	31
94	24	USSR-MIDDLE	AMUDAR BASIN	41.0N 60.5E	38.7N 56.6E	40	LO	250	N	N	890812	10:38:50	163 242 51	63
94	25	USSR-MIDDLE	AMUDAR BASIN, ARAL SEA	43.0N 60.0E	37.4N 58.1E	50	LO	250	N	N	890812	10:39:18	164 245 51	63
94	26	USSR-MIDDLE	KARAKUM RES./CANAL. AGR.	37.0N 61.0E	35.4N 60.1E	5	LO	250	N	N	890812	10:39:58	164 250 50	63
94	27	USSR-MIDDLE	MARY. IRRIG. AGR.	37.5N 62.0E	34.1N 61.5E	15	LO	250	N	N	890812	10:40:25	164 252 49	63
95	23	USSR-MIDDLE	LAKE BAYKAL	51.5N 105.0E	48.1N 104.0E	80	LO	100	N	N	890810	07:17:36	163 230 48	29
95	53	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.5N 69.0E	53.2N 68.2E	25	LO	100	N	N	890810	08:45:37	162 208 50	30
95	54	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.0N 69.0E	53.1N 68.5E	25	LO	100	N	N	890810	08:45:40	162 208 50	30
95	55	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.0N 69.0E	53.0N 68.7E	25	LO	100	N	N	890810	08:45:43	162 209 50	30
95	56	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.5N 69.0E	52.2N 71.2E	20	LO	100	N	N	890810	08:46:09	162 213 50	30
95	57	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.5N 69.0E	52.1N 71.5E	20	LO	100	N	N	890810	08:46:13	162 213 50	30
95	58	USSR-MIDDLE	LAKE TENGIZ. STEPPE. AGR.	50.5N 69.0E	52.0N 72.0E	25	LO	100	N	N	890810	08:46:18	162 214 50	30
95	59	USSR-MIDDLE	KARAGANDA. FIRES. STEPPE	49.0N 73.0E	51.3N 73.7E	40	LO	100	N	N	890810	08:46:37	162 217 50	30
95	60	USSR-MIDDLE	KARAGANDA. FIRES. STEPPE	49.0N 73.0E	51.3N 73.9E	40	LO	100	N	N	890810	08:46:40	162 218 49	30
95	61	USSR-MIDDLE	KARAGANDA. FIRES. STEPPE	49.0N 73.5E	51.1N 74.4E	40	LO	100	N	N	890810	08:46:46	162 218 49	30
95	62	USSR-MIDDLE	LAKE BALKHASH, STEPPE	46.5N 74.5E	50.7N 75.4E	40	HO	100	N	N	890810	08:46:57	162 220 49	30
95	63	USSR-MIDDLE	LAKE BALKHASH, STEPPE	46.5N 74.5E	50.6N 75.6E	40	HO	100	N	N	890810	08:47:00	162 220 49	30
95	64	USSR-MIDDLE	LAKE BALKHASH, STEPPE	46.0N 75.0E	50.4N 76.0E	40	HO	100	N	N	890810	08:47:04	162 221 49	30
95	65	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	46.5N 81.5E	47.0N 83.2E	45	LO	100	N	N	890810	08:48:36	163 233 44	30
95	66	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	46.0N 82.0E	46.8N 83.6E	45	LO	100	N	N	890810	08:48:41	163 234 44	30
95	67	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	46.5N 82.0E	46.5N 84.0E	50	LO	100	N	N	890810	08:48:47	163 235 44	30
98	84	USSR-MIDDLE	L. KUSHMURUN. AGR. STEPPE	52.5N 65.0E	54.2N 64.4E	80	LO	250	N	N	890810	08:44:55	162 202 50	30
98	85	USSR-MIDDLE	L. TENGIZ. AGR. STEPPE	50.5N 69.0E	53.4N 67.5E	10	LO	250	N	N	890810	08:45:26	162 207 50	30

**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
98	86	USSR-MIDDLE	L. TENGIZ, AGR. STEPPE	50.5N 49.5E	51.4N 73.5E	10 LO	250 N H	890810	08:46:31	162 217 50 30
98	87	USSR-MIDDLE	L. BALKHASH, MID-SECT.	46.5N 76.0E	48.9N 78.5E	50 LO	250 N H	890810	08:47:43	163 227 49 30
98	88	USSR-MIDDLE	L. SASYKKOL, STEPPE	46.5N 81.0E	47.7N 81.8E	35 LO	250 N H	890810	08:48:12	163 231 48 30
98	89	USSR-MIDDLE	L. ALAKOL, STEPPE	46.0N 81.5E	47.6N 82.0E	50 LO	250 N Y	890810	08:48:16	163 231 48 30
98	90	USSR-MIDDLE	L. ALAKOL, ALLUVIAL FAN	46.0N 82.0E	47.5N 82.3E	40 LO	250 N Y	890810	08:48:20	163 232 48 30
100	5	USSR-MIDDLE	PYSHNA R. INDUSTRY, LAKES	57.0N 62.0E	56.3N 60.7E	10 LO	250 N H	890812	07:29:09	161 168 48 61
100	6	USSR-MIDDLE	PETROPAVLOVSK, ISHIM R.	53.0N 69.0E	54.8N 69.1E	20 NV	250 N H	890812	07:30:27	162 181 50 61
100	7	USSR-MIDDLE	SWAMP	52.0N 80.5E	51.7N 80.2E	60 NV	250 N H	890812	07:32:21	162 189 52 61
100	8	USSR-MIDDLE	L. ZAYSAH, IRTISH R.	48.0N 84.0E	50.7N 82.8E	40 LO	250 N H	890812	07:32:51	162 204 52 61
100	31	USSR-MIDDLE	DZHEZKAZGAN, SARYSU R.	48.0N 68.0E	46.8N 68.1E	5 LO	250 N H	890812	09:05:07	163 219 53 62
100	32	USSR-MIDDLE	L. BALKHASH, SARYSHAGAN	46.0N 73.5E	43.7N 73.1E	15 LO	250 N H	890812	09:06:28	163 229 52 62
100	33	USSR-MIDDLE	L. BALKHASH, SOUTH END	45.0N 74.0E	42.7N 74.5E	15 LO	250 N H	890812	09:06:43	163 232 52 62
151	1	USSR-MIDDLE	IRTYSH R. CONTRAIL	51.0N 84.0E	50.7N 83.2E	40 LO	90 N Y	890809	08:38:19	163 227 47 14
151	2	USSR-MIDDLE	BASHCHELAKSKIY MYNS. CONT	50.5N 84.5E	50.1N 84.5E	50 LO	90 N Y	890809	08:38:34	163 230 47 14
151	3	USSR-MIDDLE	BUKHTARMA R. CONTRAIL	50.0N 85.5E	49.6N 85.6E	50 NV	90 N Y	890809	08:38:48	163 231 47 14
151	28	USSR-MIDDLE	CLOUDS, IRIKINSKOYE RES	51.0N 60.0E	52.1N 55.5E	85 HO	90 N H	890809	10:08:07	162 221 48 15
151	29	USSR-MIDDLE	SYDARYA R. STEPPES	44.0N 65.0E	50.6N 60.3E	60 HO	90 N H	890809	10:08:51	163 227 47 15
151	30	USSR-MIDDLE	L. TENGIZ, STEPPES	50.0N 70.0E	49.4N 63.1E	75 HO	90 N H	890809	10:09:25	163 232 47 15
151	31	USSR-MIDDLE	SYDARYA R. STEPPES	44.5N 67.5E	48.8N 64.5E	50 HO	90 N H	890809	10:09:42	163 234 46 15
151	33	USSR-MIDDLE	SYDARYA R. STEPPES	43.5N 70.0E	48.1N 65.8E	50 HO	90 N H	890809	10:09:59	163 236 46 15
151	34	USSR-MIDDLE	L. BALKHASH, STEPPES	46.5N 75.5E	47.6N 66.8E	50 HO	90 N Y	890809	10:10:12	163 238 46 15
151	35	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.0E		50 HO	90 N Y			
151	36	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 76.5E	46.9N 68.1E	50 HO	90 N H	890809	10:10:30	163 240 45 15
151	37	USSR-MIDDLE	CHU R. MOYUNKUM DESERT	43.5N 72.5E	46.5N 68.8E	40 HO	90 N H	890809	10:10:40	163 241 45 15
151	38	USSR-MIDDLE	TIEN SHAN, FERGANSKAJA	40.5N 73.0E	46.8N 69.7E	50 HO	90 N H	890809	10:10:52	163 242 45 15
151	40	USSR-MIDDLE	L. BALKHASH, STEPPES	46.0N 75.0E	45.4N 70.7E	50 HO	90 N Y	890809	10:11:07	163 244 44 15
151	41	USSR-MIDDLE	L. BALKHASH, STEPPES	45.5N 75.5E		50 HO	90 N Y			
151	42	USSR-MIDDLE	L. ISSYKKUL, TIEN SHAN	42.5N 78.5E	42.9N 74.5E	60 HO	90 N H	890809	10:12:05	163 250 42 15
151	257	USSR-MIDDLE	L. TENGIZ, STEPPES	51.5N 68.0E		50 LO	90 N Y			
151	258	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N 68.5E		50 LO	90 N Y			
151	259	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N 69.5E		60 LO	90 N Y			
151	260	USSR-MIDDLE	L. TENGIZ, STEPPES	51.0N 70.0E		60 LO	90 U Y			
151	261	USSR-MIDDLE	L. BALKASH, DBL EXPOSURE			LO	90 N H			
151	262	USSR-MIDDLE	L. ISSYK-KUL, TIEN SHAN	40.5N 75.5E		40 HO	90 N H			
151	263	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	47.0N 82.0E		60 LO	90 N Y			
151	264	USSR-MIDDLE	L. ALAKOL, L. SASYKKOL	46.0N 83.5E		50 LO	90 N Y			
152	26	USSR-MIDDLE	ARAL SEA, DESERT	46.0N 60.5E	47.2N 59.9E	60 NV	250 N H	890810	10:18:55	163 232 48 31
152	27	USSR-MIDDLE	ARAL SEA, DESERT	45.0N 60.5E		30 NV	250 N H			
152	31	USSR-MIDDLE	ARAL SEA, DESERT	44.5N 52.0E		20 LO	250 N H			
152	32	USSR-MIDDLE	ZHANADAR R. KYZYLKUM DES	44.5N 63.5E	45.4N 63.0E	20 NV	250 N H	890810	10:19:39	163 238 47 31
152	33	USSR-MIDDLE	SYRDAR R. IRRIG. AGR.	45.0N 64.5E		40 NV	250 N H			
152	34	USSR-MIDDLE	SYRDAR R. IRRIG. AGR.	44.5N 65.5E	43.9N 65.3E	10 NV	250 N H	890810	10:20:14	163 242 47 31
152	35	USSR-MIDDLE	SYRDAR R. IRRIG. AGR.	44.0N 66.5E		0 NV	250 N H			
152	36	USSR-MIDDLE	L. AYDARKUL, NURATAU MTH	41.0N 66.5E	42.6N 67.1E	0 LO	250 N Y	890810	10:20:42	163 245 46 31
152	37	USSR-MIDDLE	L. AYDARKUL, KYZYLKUM DES	41.0N 65.5E		0 LO	250 N Y			
152	38	USSR-MIDDLE	SAMARKAND, TURKESTAN MTH	40.0N 68.5E	41.4N 68.7E	0 LO	250 N Y	890810	10:21:05	163 248 45 31
152	39	USSR-MIDDLE	TURKESTAN MTHS, AGR.	40.0N 69.0E		0 LO	250 N Y			
152	40	USSR-MIDDLE	KAYRAKKUM RES, TURK. MTH	40.5N 70.0E	41.0N 69.3E	0 LO	250 N Y	890810	10:21:18	163 249 45 31
152	41	USSR-MIDDLE	TURKESTAN MTHS, AGR.	39.5N 71.0E		5 LO	250 N Y			
152	42	USSR-MIDDLE	TURKESTAN MTHS, NUKSU R	39.5N 71.5E	40.3N 70.1E	5 LO	250 N Y	890810	10:21:33	163 250 44 31
152	43	USSR-MIDDLE	L. KARAKUL, TURK. MTHS.	39.5N 73.5E	39.2N 71.5E	5 LO	250 N Y	890810	10:21:57	164 253 44 31
152	44	USSR-MIDDLE	L. SAREZ, MT. REVOLUCII	38.5N 72.5E	38.9N 71.8E	0 NV	250 N Y	890810	10:22:02	164 253 44 31
152	45	USSR-MIDDLE	L. SAREZ, L. YASHILKUL	38.0N 72.5E	38.4N 72.4E	5 NV	250 N Y	890810	10:22:13	164 254 43 31
152	212	USSR-MIDDLE	SYVERDOVSK, ASBEST, AGR	57.0N 61.5E	57.0N 60.4E	40 NV	250 N H	890811	07:19:49	161 165 48 45
152	213	USSR-MIDDLE	KYSHTYM, K/SLL AGR.	55.5N 60.0E	56.9N 61.3E	60 LO	250 N H	890811	07:19:55	161 166 48 45
152	214	USSR-MIDDLE	TOBAL R. AGR.	55.5N 65.0E	56.7N 64.4E	60 LO	250 N H	890811	07:20:22	162 170 48 45
152	215	USSR-MIDDLE	IRTYSH R. VAGAY R.	57.5N 68.0E	56.3N 68.5E	60 LO	250 N H	890811	07:20:58	162 176 49 45
152	216	USSR-MIDDLE	L. EBYTY, L. ULKEN-KAROV	55.0N 71.0E	55.8N 71.6E	90 NV	250 N H	890811	07:21:26	162 181 50 45
152	217	USSR-MIDDLE	L. ULKEN-KAROV	55.5N 71.5E	55.8N 71.6E	90 LO	250 N H	890811	07:21:29	162 181 50 45
152	218	USSR-MIDDLE	OMSK	55.5N 73.5E	55.7N 72.4E	90 LO	250 N Y	890811	07:21:34	162 182 50 45
152	219	USSR-MIDDLE	OMSK	55.0N 73.0E	55.5N 73.4E	90 NV	250 N Y	890811	07:21:45	162 184 50 45
152	220	USSR-MIDDLE	LAKE CHANY	54.5N 77.5E	54.8N 77.0E	95 NV	250 N H	890811	07:22:17	162 190 50 45
152	221	USSR-MIDDLE	KAMEN NA-OBEL, OB. R.	53.5N 81.0E	53.8N 81.0E	85 NV	250 N Y	890812	07:22:57	162 194 51 45
152	222	USSR-MIDDLE	KAMEN NA-OBEL, OB. R.	53.5N 80.5E	53.6N 81.0E	85 NV	250 N Y	890812	07:23:06	162 198 51 45
152	223	USSR-MIDDLE	TEELI, ZAPADNYIY MTHS.	51.0N 89.5E	51.0N 89.7E	70 NV	250 N H	890812	07:24:31	162 211 51 45
153	74	USSR-MIDDLE	ARAL SEA, TURGAY R.	47.5N 60.0E	50.2N 61.1E	20 LO	90 N H	890812	09:03:56	162 206 53 62
153	74 A	USSR-MIDDLE	SYRDARYA R. BASIN, DES.	45.0N 68.0E		10 LO	90 N H			
73	63	USSR-PACIFIC	MOUNTAINS, CLOUDS		42.2N 132.4E	60 LO	250 N H	890811	22:13:46	161 88 21 55
73	64	USSR-PACIFIC	MOUNTAINS, CLOUDS		43.0N 133.4E	60 LO	250 N H	890811	22:14:02	161 89 22 55
73	65	USSR-PACIFIC	MOUNTAINS, CLOUDS		46.1N 138.5E	70 LO	250 N H	890811	22:15:16	161 85 26 55



**TABLE 4-4.- STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Continued)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
73	66	USSR-PACIFIC	MOUNTAINS, CLOUDS		46.3N 138.8E	70 LO	250 N H	890811	22:15:21	161 95 26 55
73	67	USSR-PACIFIC	MOUNTAINS, CLOUDS		47.3N 140.7E	50 LO	250 N H	890811	22:15:46	161 97 27 55
73	68	USSR-PACIFIC	MOUNTAINS, CLOUDS		47.5N 140.9E	40 LO	250 N H	890811	22:15:49	161 97 27 55
73	69	USSR-PACIFIC	MOUNTAINS, CLOUDS		48.2N 141.9E	60 LO	250 N H	890811	22:16:03	161 98 28 55
73	70	USSR-PACIFIC	SAKHALIN	51.0N 143.0E	48.4N 142.8E	40 LO	250 N H	890811	22:16:14	161 99 28 55
73	71	USSR-PACIFIC	SAKHALIN	51.5N 143.0E	48.5N 142.8E	50 LO	250 N H	890811	22:16:16	161 99 28 55
73	72	USSR-PACIFIC	SAKHALIN	52.5N 143.9E	48.6N 143.1E	60 LO	250 N H	890811	22:16:18	161 100 28 55
73	73	USSR-PACIFIC	SAKHALIN	53.0N 143.0E	48.7N 143.3E	70 LO	250 N H	890811	22:16:21	161 100 28 55
73	74	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 161.0E	52.5N 152.1E	70 LO	250 N H	890811	22:18:05	161 110 33 55
73	75	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 160.5E	52.5N 153.6E	30 HO	250 N H	890811	22:18:14	161 111 34 55
73	76	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 160.5E	52.7N 153.5E	30 HO	250 N H	890811	22:18:20	161 112 34 55
73	77	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 162.0E	52.9N 154.0E	40 LO	250 N H	890811	22:18:25	161 112 34 55
73	78	USSR-PACIFIC	KAMCHATKA PENINSULA	57.5N 163.8E	53.6N 154.3E	50 LO	250 N H	890811	22:18:28	161 112 34 55
73	79	USSR-PACIFIC	KAMCHATKA PENINSULA	57.0N 162.0E	53.3N 155.4E	50 LO	250 N H	890811	22:18:42	161 114 35 55
73	80	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 160.5E	53.6N 156.7E	50 LO	250 N H	890811	22:18:53	161 115 36 55
73	81	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 160.0E	53.8N 157.4E	50 LO	250 N H	890811	22:19:00	161 116 36 55
73	82	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 159.0E	54.2N 158.8E	30 LO	250 N H	890811	22:19:15	161 118 36 55
73	83	USSR-PACIFIC	KAMCHATKA PENINSULA	55.5N 157.0E	54.7N 160.8E	90 LO	250 N H	890811	22:19:34	161 120 37 55
73	84	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 158.0E	54.8N 161.2E	80 LO	250 N H	890811	22:19:38	161 121 37 55
73	85	USSR-PACIFIC	KAMCHATKA PENINSULA	57.0N 158.5E	55.6N 162.5E	20 LO	250 N H	890811	22:19:50	161 122 38 55
73	86	USSR-PACIFIC	KAMCHATKA PENINSULA	55.0N 159.0E	55.1N 163.6E	60 LO	250 N H	890811	22:19:55	161 123 38 55
73	87	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 160.0E	55.2N 163.4E	40 LO	250 N H	890811	22:19:58	161 124 38 55
73	88	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 161.5E	55.3N 164.1E	40 LO	250 N H	890811	22:20:06	161 124 39 55
73	89	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 162.5E	55.7N 165.8E	10 LO	250 N H	890811	22:20:22	161 127 39 55
73	90	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 162.0E	55.7N 166.1E	10 LO	250 N H	890811	22:20:28	161 127 39 55
73	91	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 163.0E	55.8N 166.5E	50 LO	250 N H	890811	22:20:28	161 127 40 55
73	92	USSR-PACIFIC	KAMCHATKA PENINSULA	56.5N 163.0E	55.8N 167.0E	20 LO	250 N H	890811	22:20:32	161 128 40 55
73	93	USSR-PACIFIC	KAMCHATKA PENINSULA	58.5N 163.5E	56.6N 168.1E	30 LO	250 N H	890811	22:20:42	161 129 40 55
73	94	USSR-PACIFIC	KAMCHATKA PENINSULA	59.0N 164.5E	56.1N 168.5E	40 LO	250 N H	890811	22:20:46	161 130 40 55
82	95	USSR-PACIFIC	KURIL ISLANDS	45.5N 149.5E	43.4N 149.6E	90 LO	100 N H	890809	21:58:30	161 97 31 23
82	96	USSR-PACIFIC	KURIL ISLANDS	47.5N 152.5E	47.5N 157.0E	90 LO	100 N H	890809	22:00:16	161 107 35 23
83	69	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 160.5E	56.6N 172.8E	60 HO	100 N H	890811	22:22:31	161 135 42 55
83	70	USSR-PACIFIC	KAMCHATKA PENINSULA	59.0N 163.0E	56.6N 173.0E	50 HO	100 N H	890811	22:22:33	161 136 42 55
83	71	USSR-PACIFIC	KAMCHATKA PENINSULA	60.0N 165.5E	56.6N 173.2E	60 HO	100 N H	890811	22:22:35	161 136 42 55
83	72	USSR-PACIFIC	OLYUTORSKIY GULF	61.0N 170.0E	56.7N 173.8E	50 HO	180 N H	890811	22:22:40	161 137 42 55
83	73	USSR-PACIFIC	OLYUTORSKIY GULF	60.5N 167.0E	56.7N 174.6E	40 HO	100 N H	890811	22:22:42	161 137 42 55
83	74	USSR-PACIFIC	KAMCHATKA PENINSULA	59.0N 165.0E	56.7N 174.2E	60 HO	100 N H	890811	22:22:44	161 137 42 55
83	75	USSR-PACIFIC	KAMCHATKA PENINSULA	58.0N 164.0E	56.7N 174.5E	60 HO	100 N H	890811	22:22:46	161 138 42 55
83	76	USSR-PACIFIC	KAMCHATKA PENINSULA	57.5N 163.5E	56.8N 174.7E	70 HO	100 N H	890811	22:22:48	161 138 42 55
83	77	USSR-PACIFIC	KAMCHATKA PENINSULA	56.0N 164.0E	56.8N 174.9E	80 HO	100 N H	890811	22:22:50	161 138 42 55
90	10	USSR-PACIFIC	KURIL ISLANDS	47.0N 152.0E	45.5N 152.7E	70 NV	250 N Y	890812	20:53:48	160 90 21 70
90	11	USSR-PACIFIC	KURIL ISLANDS	47.0N 152.5E	46.2N 153.8E	70 NV	250 N Y	890812	20:54:04	160 91 22 70
98	0 A	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	46.0N 150.0E	45.8N 153.4E	85 LO	250 N H	890809	21:59:29	161 102 33 23
98	1	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	47.5N 152.5E	46.9N 155.4E	95 LO	250 N Y	890809	21:59:56	161 105 34 23
98	2	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	47.5N 152.5E	47.1N 155.4E	95 LO	250 N Y	890809	21:59:58	161 105 35 23
98	3	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	47.5N 152.5E	48.8N 158.8E	95 LO	250 N Y	890809	22:00:43	161 109 36 23
98	4	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	47.5N 152.5E	49.0N 159.4E	95 LO	250 N Y	890809	22:00:49	161 110 37 23
98	5	USSR-PACIFIC	KURILES-KETOY LCLO WAKES	47.5N 152.5E	49.5N 160.5E	85 LO	250 N H	890809	22:01:03	161 111 37 23
98	6	USSR-PACIFIC	ONEKOTAN I. CLO WAKES	49.0N 154.5E	50.1N 161.8E	90 LO	250 N H	890809	22:01:18	161 113 38 23
98	7	USSR-PACIFIC	SHUNSHU I. KOZEREVSKOYE	51.0N 154.0E	50.8N 163.6E	85 LO	250 N H	890809	22:01:40	161 115 38 23
153	38	USSR-PACIFIC	INLAND BASIN		45.0N 136.6E	85 LO	250 N H	890811	22:16:06	161 93 26 55
153	39	USSR-PACIFIC	SIKHOTE MTHS. VALLEY FOG	49.0N 137.0E	48.4N 142.8E	80 LO	250 N H	890811	22:17:31	161 99 28 55
153	40	USSR-PACIFIC	SIKHOTE MTHS. VALLEY FOG	49.5N 138.5E	48.7N 143.4E	60 LO	250 N H	890811	22:17:39	161 104 29 55
153	41	USSR-PACIFIC	SIKHOTE MTHS. VALLEY FOG	49.0N 138.0E	49.4N 144.7E	70 LO	250 N H	890811	22:17:56	161 101 29 55
153	42	USSR-PACIFIC	SOUTH SAKHALIN I.	47.5N 141.5E	50.1N 146.3E	70 LO	250 N H	890811	22:18:15	161 103 30 55
153	43	USSR-PACIFIC	SOUTH SAKHALIN I.	49.0N 142.0E	50.2N 146.5E	70 LO	250 N H	890811	22:18:18	161 103 31 55
153	44	USSR-PACIFIC	MID SAKHALIN I. VAL FOG	49.5N 141.5E	50.2N 146.7E	70 LO	250 N H	890811	22:18:20	161 104 31 55
153	45	USSR-PACIFIC	MID SAKHALIN I. VAL FOG	50.5N 141.5E	50.3N 147.0E	70 LO	250 N H	890811	22:18:23	161 104 31 55
153	46	USSR-PACIFIC	MID SAKHALIN I.	50.0N 142.5E	50.6N 147.6E	70 LO	250 N H	890811	22:18:30	161 105 31 55
153	47	USSR-PACIFIC	MID SAKHALIN I. VAL FOG	50.5N 142.5E	50.7N 147.8E	65 LO	250 N H	890811	22:18:33	161 105 31 55
153	48	USSR-PACIFIC	MID SAKHALIN I. VAL FOG	51.0N 143.0E	50.8N 148.1E	60 LO	250 N H	890811	22:18:36	161 105 31 55
153	49	USSR-PACIFIC	MID SAKHALIN I. VAL FOG	51.5N 143.0E	50.9N 148.4E	50 LO	250 N H	890811	22:18:40	161 106 32 55
153	50	USSR-PACIFIC	NORTH SAKHALIN I.	52.5N 142.5E	51.8N 150.7E	70 LO	250 N H	890811	22:19:06	161 108 33 55
153	51	USSR-PACIFIC	NORTH SAKHALIN I.	53.0N 142.5E	51.9N 151.0E	80 LO	250 N H	890811	22:19:09	161 109 33 55
153	52	USSR-PACIFIC	KAMCHATKA PENINSULIN MT	57.5N 160.5E	54.6N 160.5E	15 LO	250 N H	890811	22:20:48	161 120 37 55
153	53	USSR-PACIFIC	KAMCHATKA PENINSULIN MT	60.5N 161.0E	54.7N 160.8E	40 HO	250 N H	890811	22:20:51	161 120 37 55
153	54	USSR-PACIFIC	KAMCHATKA PENINSULIN MT	63.0N 167.0E	54.8N 161.2E	60 HO	250 N H	890811	22:20:55	161 121 37 55
153	55	USSR-PACIFIC	ILPINSKIY PEN. PUSTAYA R	62.0N 166.0E	54.9N 161.8E	70 HO	250 N H	890811	22:21:01	161 122 38 55
153	56	USSR-PACIFIC	KAMCHATKA PENINSULIN P	61.5N 162.0E	55.1N 162.9E	60 HO	250 N H	890811	22:21:11	161 123 38 55
153	57	USSR-PACIFIC	ILPINSKIY PEN. PUSTAYA R	61.5N 165.0E	55.2N 163.2E	70 HO	250 N H	890811	22:21:14	161 123 38 55



**TABLE 4-4. STS-28 HANDHELD PHOTOGRAPHY SORTED  
BY GEOGRAPHIC NAME (Concluded)**

RL	FR	GEOGRAPHIC NAME	FEATURE	CENTER LAT LON	NADIR LAT LON	CC TL	FL E S	DATE	GMT	SUN AL AZ EL OR
151	56	USSR-PACIFIC	KAMCHATKA PEN. SREDIN MT	58.5N 161.5E	55.3N 163.0E	15 LO	250 N N	890811	22:21:21	161 124 38 51
81	86	VENEZUELA	RIO GRANDE, BOCA GRANDE	9.0N 60.5W	10.7N 59.2W	50 NV	100 N Y	890809	20:56:29	165 282 19 22
81	87	VENEZUELA	RIO GRANDE, BOCA GRANDE	9.0N 60.5W	10.3N 58.9W	60 NY	100 N Y	890809	20:56:34	165 283 18 22
90	42	VENEZUELA	GOLFO DE VENEZUELA	13.5N 70.0W	9.1N 81.4W	60 HO	250 N N	890812	21:21:45	165 282 33 70
75	7	VIETNAM	MEKONG RIVER DELTA	10.0N 106.5E	9.6N 105.8E	70 NV	100 N Y	890808	23:06:48	162 75 4 8
75	8	VIETNAM	MEKONG RIVER DELTA	10.6N 106.5E	10.3N 106.3E	70 NY	100 N Y	890808	23:10:01	162 75 9 8
98	95	VIETNAM	SONG HONG R. DELTA	20.5N 106.5E	21.9N 109.8E	40 LO	250 N N	890810	08:57:08	165 276 31 30
98	96	VIETNAM	G. TONKIN, CST, ISLANDS	21.5N 106.0E	21.5N 110.0E	20 LO	250 N N	890810	08:57:14	165 276 30 30
99	88	WESTERN SAHARA	RIO DE ORO PEN, ATL CST	24.0N 16.0W	22.4N 13.4W	50 HO	50 N N	890811	16:37:48	165 272 38 51
151	103	WESTERN SAHARA	HAMADA DU DRA, QUARKZIZ	26.0N 12.0W		40 HO	80 N N			
84	27	YUGOSLAVIA	ITALY, CORSICA, SARDINIA	45.0N 14.0E	49.2N 17.5E	70 HO	100 N N	890812	12:05:15	162 209 53 64
90	60	YUGOSLAVIA	TRIESTE, GULF OF VENICE	46.0N 13.5E	44.6N 13.5E	5 NY	250 N N	890813	05:56:28	160 87 18 76
90	63	YUGOSLAVIA	ADRIATIC SEA	45.0N 14.0E	45.6N 15.0E	5 NV	250 N N	890813	05:56:50	160 89 19 76
96	41	YUGOSLAVIA	VELEBIT MTNS, PAG L	45.0N 15.0E	47.2N 13.8E	70 LO	250 N N	890810	13:18:57	163 231 49 33
96	42	YUGOSLAVIA	VELEBIT MTNS, PAG L	44.5N 15.0E	47.1N 14.0E	70 LO	250 N N	890810	13:19:59	163 232 48 33
96	43	YUGOSLAVIA	VELEBIT MTNS, ZADAR	44.0N 15.5E	47.0N 14.2E	60 LO	250 N N	890810	13:20:02	163 232 48 33
96	46	YUGOSLAVIA	SPLIT, BRAC I, HVAR I	43.5N 16.5E	45.5N 16.9E	40 LO	250 N N	890810	13:20:40	163 237 48 33
96	47	YUGOSLAVIA	CST, PELJESAC PEN, HVAR I	43.0N 17.5E	45.4N 17.0E	40 LO	250 N N	890810	13:20:42	163 237 48 33

## **5. STS-28 EARTH OBSERVATIONS PHOTOGRAPHY SUMMARY MAPS - A AND B**

Two STS-28 Earth Observations Photography Summary Maps are included as inserts in this catalog. Summary Map A illustrates the locations of photography center points which could be determined. These points are plotted and annotated (roll and frame numbers) in red on the map. For photographs that could not be located, nadir latitude and longitude coordinates have been plotted and printed in blue on Summary Map B. The latter coordinates represent the points directly beneath the spacecraft at the time the photographs were exposed. On both maps, where a large concentration of points is contained in a small area, the points are enclosed within a box with the frame numbers bracketed outside. The textual index must be used to obtain the latitude and longitude for each individual frame number.

The scale of each map is 1:40,000,000 at the Equator on a Mercator projection.

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